THE

REVENUE REGISTER.

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ADMINISTRATION OF INDORE.

We lately reviewed the Administration of Travancore: we now propose to say a few words on the subject of a modest little pamphlet recently received by us, entitled the Report on the Administration of Indore for the year 1875-76. Indore is situated far away in Central India, to the north-west of the Vindhya mountains, and but little out of the course of the Great Indian Peninsular Railway, which stretches its magnificent length of 1,278 miles from Bombay to Allahabad, where it touches the East India Railway still longer than itself. Indore is hardly so well known to Southern India as Travancore. It is familiar, however, to the student of Indian History as the capital of the territory of the Maharajah Holkar; and yet, there is a closer interest for us in this far off region than mere historic recollections of the past; for it has a present living interest in the fact that it was recently administered by a Madras man of mark, and is now being administered by another Madras man who is making his mark. The present Maharajah, differing in character from his warlike predecessors, has, it is said, a strong commercial turn of mind; but his love of mere filthy lucre is not so strong as to render him blind to the advantages of a vigorous administration of his State. He translated Sir Madhava Rao from Travancore; and when that distinguished native statesman's services were peremptorily demanded to set the troubled affairs of Baroda in order, he called to his aid Madhava Rao's first cousin, our well known townsman Ragoonath Rao, who has already earned the appreciation of a far better judge of men than his employer Holkar —no less an authority than Sir Henry Daly, Agent to the Governor-General in Central India. Ragoonath Rao is the son of a former Dewan of Travancore, and until his translation to Indore, was Deputy Collector of Madras. His abilities are of a rare order; but what we admire in him is that he is a straightforward plain spoken honest-hearted man, whose tongue cannot tell a lie. He is a Mahratta by birth; but he is every inch an Englishman in his love of all that is manly and good, and his hatred of all that is mean and bad.

But let us pass to the pamphlet that is lying before us. It is a report addressed by M. R. R. Ragoonath Rao to His Highness the Maharajah Holkar, and sets out with the fact that in the year under review, the late Viceroy, Lord Northbrook, visited Indore and expressed himself favorably on the condition of the country and people, and that the capital was also visited by His Royal Highness the Prince of Wales, who

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was pleased with his reception and all that he had the opportunity of seeing. Ragoonath Rao also records the fact that the Maharajah was present at the Chapter of the Star of India held by the Prince of Wales at Calcutta; and we may add the interesting fact that the adopted son of Holkar's prime minister, a clever promising little boy whose familiar name is *Déverath,* or the gift of God, was the Maharajah's page at that brilliant pageant and had the honor of holding the gorgeous train of His Highness. The State Railway to connect Indore with the Great Indian Peninsular is in progress, but there is a gap of 20 miles between Indore and Choral. The Secretary of State has just sanctioned His Highness' proposal that the British Mint should on certain conditions coin the Indore Rupee, the equivalent of our rupee, a measure which will remove inconvenience in trade and facilitate intercommunication between the territories of Holkar and the British possessions. To improve Postal communication also between these territories, an arrangement has been made with the British Post Office to receive and distribute letters addressed to places within the Maharajah's kingdom, and to hand over to the British Post Office letters proceeding out of the kingdom. The tax hitherto levied on pilgrims proceeding to the Pagoda of Onkar and the tax on timber floating up or down the Nerbudda river have been abolished; but in order to discourage drunkenness and to enable the drinking public to obtain liquor free from deleterious ingredients, the monopoly of the whole Abkari has been made over to a single contractor. There has been good work in the Legislative Department: we gather that there has been no blind copying of our Civil and Criminal Codes; but, in the language of the Prime Minister, rules for the administration of justice have been drawn up on the forensic and ethical Codes of many civilized nations; and in this larger scheme, the welfare of the rural community has not been forgotten, for regulations for the improvement of village administration have been considered in detail in His Highness' Durbar. For the administration of justice there are six grades of Civil Courts in Holkar's dominions, viz., one Court of the highest grade, or the Sudr Court; four of the 2nd grade, or the Zillah Courts of Indore, Nemád, Rampura, and Nimawar; five of the 3rd grade, or the two Adawluts in the city of Indore, and the Subha Courts of Indore, Nemád and Rampura; twenty-two of the 4th grade, located at different stations, and authorized to try original suits from Rupees 200 to Rupees 1,000; twenty-nine of the 5th grade, authorised to try suits from Rupees 20 to Rupees 200; and three of the 6th grade, authorized to try suits from one Rupee to 20 Rupees in value. It will be interesting to learn something of the constitution of the three Superior Courts. The Sudr Court does not exercise original jurisdiction, except in cases transferred to its file by order of the Durbar. Its regular powers are to hear appeals from decisions of the Courts of the 2nd grade in original suits, and special appeals from their decisions in appeals from the Lower Courts. The Sudr Court also exercises general supervision over all the Subordinate Courts of whatever grade, and disposes of all references made by them on points of difficulty or doubt. All its former functions of assisting the Durbar in organizing Courts, framing rules of procedure, and disposing of ministerial and miscellaneous business, are now however undertaken and discharged by the Prime Minister himself. The Zillah Courts are authorized to try original suits in which the value litigated exceeds 2,000 Rupees, and to hear all appeals from the Lower Courts. The two Adaw-

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luts in the city of Indore are Courts of co-ordinate jurisdiction empowered to hear all original suits arising in the city in which the amount in dispute does not exceed 2,000 Rupees, but they have no appellate powers. It is explained that the trade and money dealing of the city of Indore are so extensive as to give rise to a large amount of litigation, which keeps the two Adawluts and the Zillah Court in full occupation; the number of suits disposed of by them being more than one thousand per annum. The Subhas try suits within their respective Zillahs in which the amount in dispute exceeds Rupees 1,000 but does not exceed Rupees 2,000, and they possess in addition the power of hearing appeals from the Courts of the last or 6th grade. These Subhas are however the principal Revenue Officers of their respective Zillahs, viz., Indore, Nemâd, and Rampura as abovementioned; and as their revenue work is of primary importance to them, they have not much time for judicial work, their share of which the Prime Minister reports is happily not very great. The periods of limitation recognized for suits are 30 years for immoveable property, and 12 years for moveable property; but M. R. R. Ragoonath Rao very properly proposes to reduce the limitation in the case of suits founded on mere verbal understandings to two years, or even one year. To the honor of Holkar be it said that the State pays two Vakils to conduct suits on behalf of paupers: they are attached to the Sudr Court, but attend to the interests of paupers in all the Courts in the city of Indore. The Durbar appears to do a good deal of work in the matter of judicial arbitration to save parties the expense of law suits. On this point we shall quote Mr. Ragoonath Rao's words. "The extensive opium speculations and time bargains in the city of Indore are always the subject of animated controversy between the 'Bulls' and the 'Bears,' or as they are here styled *Potáwálás* and *Máthaválás*. But all disputes arising therefrom are decided by the Punchs. If a party fails to perform his contract, the matter is referred to the Punchs, and both parties generally abide by their decision. The Durbar also lends its aid and influence, if required, for the amicable settlement of disputes arising out of these time bargains, whereby parties are saved from bringing their disputes into Courts of law." All claims of Ejárdárs, Tipdárs, &c., against cultivators or ryots are, we learn, decided by the Revenue Officers, in order to save the parties the cost of litigation in the Civil Courts. "The law and procedure," concludes the Dewan on this part of his report, "now in force in this State are generally based on the law and procedure obtaining in the British territories; but we have avoided all their technicalities, and modified those parts which are considered by the people here as severe."

For the administration of criminal justice, there are likewise six grades of Courts; viz., the Sudr, the Zillah or Sessions' Courts, and Magistrates' Courts of four classes. First Class Magistrates are authorized to award imprisonment not exceeding one year, fine not exceeding 500 Rupees, and whipping not exceeding 15 lashes; and they hear appeals from sentences passed by Third Class Magistrates. Second Class Magistrates have similar powers up to a maximum of three months' imprisonment, 100 Rupees in fine, and 10 lashes in whipping; and they hear appeals from the sentences of Fourth Class Magistrates. Third Class Magistrates may imprison up to one month, fine up to 25 Rupees, and whip up to 6 lashes; and Fourth Class Magistrates can only fine up to 10 Rupees. But all this whipping cannot be carried out without the sanction of the Zillah or Session Judges, except in the case of the city

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Magistrate of Indore who, of his own power, may now give a thief or other criminal 30 lashes, as he has numerous cases of petty theft and other crimes to deal with. The traffic at Barwai having greatly increased in consequence of the opening of the State Railway, and the fluctuating population gathered there requiring speedy justice, the Ameen of Barwai also has obtained power to whip without reference to his Zillah Court, that of Nemád. It is not necessary to describe the powers of the superior criminal Courts; but we may mention on this point, that no sentence involving imprisonment beyond ten years can be carried into execution without the sanction of the Durbar, and that no capital punishment can be carried out without the final sanction of the Maharajah himself. It will thus be seen that there is a complete and satisfactory machinery for the administration of justice, and that the intervention of the Ministry and the Crown secures the best guarantees to the people against any miscarriage in the award of punishment.

Before we pass to any notice of the administration of Indore in its other Departments, we shall briefly mention the Revenue results we gather from the report. The gross State demand was Rupees 53,72,000, of which Rupees 49,02,000 were ultimately collected, leaving a balance of Rupees 3,80,000 unrealized, plus a sum of 90,000 Rupees ordered by His Highness to be remitted. Of the principal sources of Revenue, Land yielded Rupees 30,95,000; Customs Rupees 5,26,000; Interest Rupees 3,74,000; Tributes Rupees 1,49,000; Abkári Rupees 1,17,000; and the State Cotton Mill Rupees 79,000. The rest was made up from Stamps, Fines, Post Office, Mint, and Miscellaneous. The expenditure of the year under review amounted to Rupees 40,51,000. Of this we may notice the largest items. The Palace spent Rupees 8,52,000; the Civil Establishments cost Rupees 6,98,000 plus Rupees 59,000 for the Courts; the Army and Police cost Rupees 8,24,000 and Rupees 5,36,000 respectively; the outlay on Public Works amounted to Rupees 3,67,000; and the instalment to "Capitalization of Contingent" was Rupees 2,38,000. No explanation of this last item is given in the report; but we learn from the report of the Political Agent for the previous year, that this "capitalization of contingent" means that His Highness Holkar was called upon by the British Government to make instalments of Rupees 2,38,000 a year towards the capitalization of his contribution to the Malwa Bheel corps. The Maharajah's contribution was assessed at Rupees 23,81,520; and we gather that the abovementioned instalment of Rupees 2,38,000 paid in the year under review completes Holkar's contribution to the Malwa Bheel corps. We may also mention that we learn from the same source that Holkar paid in 1874-75 Rupees 11,00,000, being his sixteenth instalment of one million on account of his State Railway loan. We may safely conclude from these facts that the financial condition of Holkar's kingdom is highly prosperous. The land revenue system of the State is said to be *fieldwar*. All cultivable and grass lands (known as *Beed*) are assessed, and by that means the gross revenue of a village is at once ascertained. The *Jumma* is leased to any person who is willing to undertake the collections for 87½ per cent of the gross. The renter is allowed, in addition, to enjoy the benefit arising from the extra cultivation of lands recovered from immemorial waste, and from the cultivation of wet produce on dry lands. Such immense advantages induce enterprising capitalists to come forward to rent the *Jummas;* and the State therefore would appear to experience no difficulty in getting in its land revenue. On the other hand, no ryot is compelled to hold land which he does not choose to retain; nor is he ousted

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from his holding so long as he pays the fixed assessment and keeps to the terms of his puttah. Great and marked progress has been made in public works by the present Chief Engineer, Mr. Carey, an English gentleman, under whom Sir H. Daly remarked in the previous year, "the result is that metalled roads, bridges, and sound drainage are driving out filth, open cesspools, and disease." In the year under review, the Dhar road was thoroughly consolidated and opened for traffic; several compartments of a new Jail were made ready for occupation, capable of accommodating about 400 men; an iron Durbar Hall was set up just outside the city of Indore, which was ordered especially for the reception of the Prince of Wales, and was entirely cast at Bombay by the well known firm of Nicol and Co.; the *Baradwári* at the Lal Baugh was completely re-modelled so as to have a grand staircase the whole breadth of the building, and a painted and pillared hall capable of holding 300 people, in substitution of the petty rooms into which the lower part of the building was previously cut up; the new market of 36 stalls commenced the previous year was completed; and a new girder bridge was put up over the Peliakal nulla near some large temples on the Deypalpore road, besides other minor works of improvement. The recently established Forest Department is supplying wood for the construction of the Railway, and is worked also under the superintendence of Mr. Carey, assisted by two native Engineers, subjects of the Maharajah, who appear to have graduated in Engineering in the University of Bombay. The forests of Indore are in two belts; one bordering on the Satpoora, and the other on the Vindhya range of mountains. The Cotton Mill was pronounced by Sir H. Daly in 1874-75 to be a prosperous institution. It is worked by Englishmen under the superintendence of Mr. Broome. In the year under review, the Mill turned out more than 70,000 pieces of cloth, which with the balance of the previous year created a stock of more than 95,000 pieces of cloth, of which more than 81,000 pieces (including *Dhoties*, which perhaps answer to what are known as *Dovaties*, in this part of the country) were sold during the year. Mr. Broome reports that the demand for his cloth is steadily and rapidly increasing; that the more it gets known, the more popular it becomes; and that he has no hesitation in saying that, without exception, it is the best and most durable cloth made in India, having entirely superseded Bombay made cloth wherever it has gone. Sanitation, Vaccination, Dispensaries, and the Medical condition of the Jails are subjects which are touched upon in the Prime Minister's report; but we must not weary our readers with minute details. In connection, however, with Jails and Hospitals, we may mention a few interesting facts gathered from the Political Agent's Report for 1874-75. The Central Jail at Indore is said to be admirably managed under the supervision of Dr. Beaumont. The system in force maintains discipline without harshness; every inmate being put to such work only as he is fit for according to his physique and calling. It appears that four or five years ago it was a sickening sight to see men of education, under suspicion and charges of misappropriation of State money, manacled in the Indore Jail with weighty irons and linked for the night to murderers and dacoits; women were imprisoned under almost any pretext, and released bereft of character; and the visit of the British Resident was resented. But the Maharajah, acting on the advice of Sir Madhava Rao, has radically reformed these evils: the Jail has been enlarged and ventilated; the prisoners are fairly treated; the untried are separated from the convicted; and there is no desire to keep the Jail a

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secret, it being as free to the inspection of visitors as jails in British territory. To the late celebrated Secunder Begum of Bhopal, however, is attributed the honor of introducing Jail management in Central India, which did not shun inspection. In respect to Hospitals, the following was reported of the Indore Charitable Hospital. It is the largest in Central India. In it were treated 9,409 out and 1,029 in-patients, many of the cases being serious forms of disease, or injury calling for surgical operation, including cataracts in the eye requiring extraction for the relief of the patient. Until this hospital became established in public estimation, Dr. Beaumont believed that many persons afflicted with curable disease must have died, and many must have dragged out a miserable existence of pain and suffering, or life long blindness. A leper hospital was built in connection with this charitable hospital; and several patients were successfully treated by Dr. Beaumont with a combination of arsenic, iodine, and iodide of potassium, in the absence of gurjun oil. Dr. Beaumont gives a short but interesting sketch of leprosy which we shall quote in his own words. "Leprosy has been known from the most remote ages, and although it has now almost disappeared from the more civilized parts of the world, it is still one of the most widely spread maladies which afflict the human race. Leprosy was known in Italy about the Christian era, after which it increased and spread so extensively, that from the eighth till the twelfth century it was very prevalent throughout Europe generally, the British Islands not escaping. After this period, it gradually declined till in the fifteenth century it had become very rare, and it has now altogether disappeared from Europe, with the exception of Norway, where in certain localities it is still of frequent occurrence. Judging from the number of leper hospitals which were in Europe and the numerous laws regulating the conduct of lepers, the disease must have been quite as prevalent there in the twelfth and thirteenth centuries as it is in India. It seems to have attracted much public attention. In all States there were many laws and regulations about lepers, securing to them certain immunities and privileges, for the sake of which, long after the disappearance of the malady, there were many persons glad to call themselves lepers. The Knights of St. Lazarus were devoted to the cure of leprosy; many suffered from it; and their Grand Master was usually a leper. The disappearance of leprosy from Europe is usually attributed to improved hygiene and improved conditions of life generally—agencies which have not yet begun to operate on the mass of the people in India, where there is no evidence that the disease is at all *declining*. Probably 1 per 1,000 of the people are afflicted with it, which gives a total 150,000 to 200,000 lepers." This is rather a startling revelation of the extent to which this terrible malady prevails in India; but we cannot follow the Doctor in his interesting account of the origin and character of this disease.

To return to the man, whose report of his administration of Indore for the year 1875-76 we have just reviewed, and to bear out what we have said of his character at the beginning of this paper, we would, for the gratification of his personal friends and the advocates in general of native advancement, conclude our remarks by quoting the brief but pregnant tribute paid by Sir H. Daly to Holkar's present Prime Minister in the following words:—"Sir Madhava Rao, whose services were sought by the Government of India for Baroda, has been replaced by a relation of his own, Ragoonath Rao, formerly Deputy Collector of Madras, a practical and earnest man bent on leaving his mark at Indore."

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CORRESPONDENCE.

LONDON LIFE.

[From our Special Correspondent.]

Sir,

My last letter had scarcely left these shores when the world was astonished by the unforeseen announcement that the great Mr. Disraeli had quitted the arena in which he had fought and conquered for so many years and was about to transfer his eloquence, his sarcasm and marvellous debating powers to the Upper House. Some years back Her Majesty was pleased to offer him a Peerage which he astutely declined, knowing that his party could not afford to lose his valuable aid in the House of Commons, but his refusal derived a peculiar grace from his humble request to the Sovereign that she would be pleased to confer the proposed honour on the lady who had shared his affections, his triumphs and his defeats for so many years with such unutterable faith and affection. The Countess of Beaconsfield is no more, the Conservative party has attained a position which its most sanguine supporters dared not hope for even ten years back, and Mr. Disraeli recognising the two facts that he has rejuvenated his followers and grown a little old himself, seeks a well-earned repose in the Chamber of our hereditary legislators. If ever a man existed who was entitled to look back upon his career with feelings of unmitigated satisfaction, surely that man is the present Earl of Beaconsfield. He presents a marvellous instance of the unerring success which attends the career of a clever man with unbounded faith in himself. Mr. Disraeli, like other statesmen, has had his share of ups and downs; he has made mistakes, he has made enemies, he has struggled against heavy odds for many years, but when his party prospects were at the lowest ebb his motto was always the same, "never say die." However overwhelming his temporary defeats, he always, in the language of the Prize-Ring, "came up smiling." Throughout his political life he always looked forward to arriving at the top of the tree; and from the day, some forty years back, when he vowed that the House of Commons *should* listen to him in the future, up to the night last month, when he concluded his Parliamentary Career in the Lower House with one of the most eloquent and impassioned addresses that ever fell from his lips, he never shrank from the unequal contest which he had to maintain. For many years, it may be said that Mr. Disraeli fought the battle of the Tories single-handed, and few statesmen of this or any other age could have so equably and so skilfully contested such a one-sided and uphill game. It is idle to deny that his absence from the Lower House must materially affect the strength of the Conservative forces; but it will be a treat to hear him demolish the feeble platitudes of Earl Granville and possibly break a lance with the eccentric old Earl from Pembroke Lodge. Now that Agamemnon has retired, the world says that Achilles (W. E. G.) who has been sulking so long, will return to the fray.

On the whole the past Session of Parliament may be pronounced to have been quiet and unsensational. Very little work was done, and this fault is by some ascribed to the factiousness of the opposition, by others to the incapacity of the existing administration. I have not time or space to indulge in political disquisitions, so your readers may take their choice according to their political bias. The fact, however, remains that very little progress in legislature was effected, although the members of the House of Commons sat up to abnormal hours both by day and night. Much time was wasted in the Debates on the Royal Titles Bill. The agitation against the assumption of the title of Empress was simply childish. But it is surprising how the *mob* is gulled by a specious cry emanating from such shallow-pated firebrands as Sir Charles Dilke, and Odger and others of that kidney; and then unfortunately the more respectable radicals, like Gladstone and Granville, have not the courage to tell the tail of their party that they must obey the head. How the liberty of the people could possibly be endangered by the change of title from Queen to Empress it would puzzle a dozen sphinxes to explain, but still this was the popular delusion. Why! Her Majesty might have called herself, the Great Mogul, or the Queen of the Cannibal Islands, or the Grand Llama, or all three combined, and it would not have affected her subjects more than if one of her ladies-in-waiting had sneezed, but the "great heart of the people" is a very curious piece of mechanism, and well organised agitation of any kind generally has a temporary success, because it is a truism that the world contains ten times as many fools as wise men. The Burials Bill again gave rise to animated discussion, but Mr. Osborne Morgan was as usual defeated: it is too much to hope that he will acceptthe *snub;* the non-conformists are very irrepressible, and their attacks on the Established Church become more venomous every session. No doubt they will succeed in the end, because *gutta cavat lapidem non vi sed sæpe cadendo;* but they will yet have to fight for some years. The most animated debates have arisen on Lord Sandon's Education-Bill; a chronic difficulty crops up owing to the necessity of considering not so much the interests of the children as the jealousies and scruples of rival religious sects. The Government had no easy task to carry their views on the subject, but of course they derived some assistance from the

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dissensions which split up the liberal party. Although the opposition were united in their desire to defeat Lord Sandon's intentions, success was beyond their grasp, because they all wanted to march to victory by a different road. *L' union fait la force*, and a house divided against itself cannot stand, so the Liberals and Radicals failed to defeat the Government measure, although they succeeded in wasting scores of valuable hours which might have been profitably employed in the acceleration of the public business. The chief rebuff experienced by the Ministry was the compulsory withdrawal of Mr. Cross' Prisons' Bill. Under its provisions both the cost and control of prisons were to be transferred from the local authorities to the Secretary of State, with power, subject to certain exceptions, to close all unnecessary prisons. Although relief would thus have been afforded to the rate-payers, many County Magistrates and Town Councils objected to the cessation of local supervision. Vestrydom was in arms; "Bumble" was loath to part with his little brief authority. The Bill was read a second time by a considerable majority, but certain daily papers persistently condemned its scope and aim, and when the "massacre of the Innocents" took place the first and most conspicuous victim was the Prisons'-Bill. I never dispute that "Discretion is the better part of valour," but in this instance I think the Cabinet might have advantageously acted with a little more firmness and independance. Mr. Trevelyan brought forward his long threatened proposal for the extension of Household Suffrage to Counties, but he was ignominiously defeated, and it is perfectly evident that the country is not ripe for such a radical change and that any move in that direction must be preceded by a re-distribution of seats. Mr. Plimsoll passed a Merchant-Shipping Bill for the protection of Sailors and the regular supervision of unseaworthy craft, and those members who took an active part in the prolonged debates appeared to be satisfied with the bill in its final shape, so it may be hoped that one "burning question" has been extinguished and that no more legislation thereanent will be required for some years to come.

The one all-absorbing topic at the present moment in all classes of society is what the public and the Press vaguely denominate the "Bulgarian atrocities." If the Prussians were to devastate Great Britain, murder our husbands and fathers and ravish our wives and daughters we should hardly term these outrages "English" atrocities, but as the Turks have been massacring Bulgarians, it seems that the English newspapers choose to call their violent deeds "*Bulgarian*" atrocities. Perhaps there is more truth in the term than is generally supposed for undoubtedly the cruelties practised in Asia Minor have not been confined to one side. It is confessedly impossible for warfare to be carried on by any nation in any country without the repeated occurrence of manifold horrors. When the Servian insurrection broke out, the *Daily News*, a journal of the greatest enterprise and respectability, lost no time in dispatching a "Special correspondent" to the scene of hostilities. The gentleman to whom the mission was entrusted was a most talented American writer but, like many of his countrymen, deficient neither in imagination nor well rounded periods. His letters were replete with such ghastly details and gave such circumstantial stories of women and children ravished, roasted and flayed alive, that interpellations were made in the House of Commons, and the Prime Minister was asked whether he approved of these "Turkish amusements." Mr. Disraeli very sensibly declined to heed the anonymous asseverations of a "Yankee Special," and replied that no official information had reached the Foreign Office. The Radical party, whose natural instincts of course convinced them that the "insurgents" must be in the right and the Turks as the representatives of constituted authority in the wrong, returned to the charge and the ministry granted that many outrages had been committed by the irregular troops of the Porte which the authorities at Stamboul had been powerless to prevent, but Mr. Disraeli stated that representations had been made to the Sultan's advisers by the United Great Powers, and that the injuries complained of would be enquired into and, as far as possible, redressed. He added significantly that if the opposition objected to the conduct of the Foreign Office in the matter, he was quite ready to meet any vote of censure that might be proposed. Lord Hartington, Mr. Gladstone, Mr. Bright, Mr. Forster and all their following were dumb. Then Parliament rose, ill-tempered members proceeded to harass salmon and grouse instead of one another, the Premier rang for his tailor to order his "robes," the gigantic gooseberries again found a place in the columns of our leading contemporaries and the world was wagging sluggishly, as is usual in the middle of August, when the *Daily News* opportunely received a fresh batch of Horrors from Bulgaria, and the *Times*, finding news very scarce, followed suit. Then flaming leaders appeared, and day after day it was mathematically proved that unless Lord Derby and Mr. Disraeli had been ruling in Downing Street not a single Christian in the Herzegovina would have lost his life; had Lord Granville been in power the Turks would have remonstrated with their rebellious vassals with white kid-gloves and rosewater, in lieu of steel and gunpowder.

Public meetings throughout the land were summoned to denounce the Mussulmans and a brutal Tory-Government; the dispatch of our Fleet to Besika Bay for the protection of the Christian subjects of the Porte was declared to

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be a movement in favour of the Turks instead of against them; and, finally, that irrepressible and imprudent pamphleteer, the Right Honorable W. E. Gladstone, issued sixty pages of printed matter in which he emptied the vials of his wrath on the Turk, the Tory and everything that is theirs. Such distinctly unscrupulous party-tactics have seldom been resorted to, and though it is not probable that the present administration will be ousted thereby, it is tolerably certain that grave complications will arise in consequence of such fearfully rash agitation, and if England succeeds in keeping clear of war she will not have to thank the Liberal Party. It would be matter of surprise that the public should be led astray so blindly and so foolishly did we not bear in mind that the "many headed" in this country are singularly susceptible when their pockets are concerned. Nearly twelve months ago Turkey declared herself bankrupt and thousands of Englishmen found themselves either ruined or with seriously diminished incomes. No means of retaliation could be devised at the time, but now, thanks to the eloquent and unscrupulous correspondent of the *Daily News* and the unbridled goose quill of the Right Honorable Member for Greenwich, the British Public have found an outlet for their pent-up wrath. Does any one suppose that Bulgarians would be above par and Turks below zero if the latter were still paying fifteen per cent interest on their debt? I trow not! The Dog received the bad name (and most deservedly) last October and now every one is eager to hang him. Every Englishman who ever held a Turkish bond, or even had an acquaintance who owned those delusive securities, seizes with avidity the opportunity of slandering the Government that has cheated him, perhaps that is natural, but it is rather hard that Her Majesty's personal advisers should be deemed responsible for the misbehaviour of fanatical Bashi-Bazouks and effete local Pashas. The cry of the malcontents here is that *we* ought to have prevented Turkish cruelty and violence, but they fail to say why our interference was more necessary than that of Russia, Prussia, France, or Austria. They say that the Turkish excesses are unparalleled in the history of the world, but have they forgotten the horrors of the Inquisition, the quarrels of the Guelphs and Ghibellines, the cruelties of Cromwell in Ireland, our own merciless behaviour in India in 1858 when *we* had to repress a formidable insurrection; and, last not least, have they not read what Napier says when writing of Wellington's soldiers at Badajoz that "not one woman or child was spared," and have they not heard of the relentless cruelty practised towards the Poles by the Russians in 1863? No one wishes to dispute the fact that very disgraceful scenes have been enacted in Bulgaria by a wild and undisciplined soldiery, but when a statesman like the late Prime Minister demands in loud and excited tones that the Turk shall be driven out of Europe, he should be admonished to look at home. People who live in glass-houses cannot afford to throw such very big stones. The writers in the *Daily News* and others betray a lamentable ignorance of the political situation. It is patent to the meanest intellect that the unfortunate Servians have no interest in the cause for which they are, so to speak, driven to fight. The rebellion has been entirely instigated and fomented by Russian diplomacy and Russian gold. Prince Milan and his subjects would have submitted long ere this had they not been afraid to thwart their ally and nominal protector Prince Gortschakoff. It is the old story of King Log and King Stork. The Servians have left the Sultan for the Czar and have fallen out of the frying-pan into the fire. The Russian design is to sap the foundations of the Turkish Empire, not openly but gradually and secretly, and every Liberal leader and every Liberal newspaper in this country is, let us hope unconsciously, aiding and abetting that design. If the Turk is to all intents and purposes expelled from Europe and the fortresses, such as Belgrade and Widdin, fall into Russian hands, Constantinople will be at the mercy of the Northern Bear. When too late, we shall find how misplaced all this cheap and sensational philanthropy is. We drifted into the Crimean War entirely because the Emperor Nicholas believed from the tone of the Radical Press that nothing would induce us to draw the sword, and the miserable *fiasco* of 1854-55 will no doubt be repeated, unless our Government is strong enough to stem the wild irresponsible tide of mistaken public-opinion which has set in during the last three weeks.

On May 31st a new Sultan was proclaimed at Constantinople, and although great hopes were entertained of his talents and political sagacity, he proved to be as incapable and imbecile as his predecessor. On the last day of August he, in his turn, was deposed and now number-three is on the throne; it is to be hoped that he will turn out a better article for the sake of his countrymen in general and the unlucky bond-holders in particular. His army in Servia has been fighting with both steadiness and enthusiasm, and unless Russia openly interposes (a contigency which is unhappily only too probable) the Turks will re-establish their authority over the insurgent Province, for, in spite of the manifold conflicting letters and telegrams which arrive from the seat of war, there is no reasonable doubt that the Sultan's troops have been victorious. "The Eastern Question," however, is as far from a solution as ever, and it is impossible to predict how the Gordian knot will be untied or cut as long as Russian ambition works in the same groove as at present. With the exception possibly of

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Prince Bismarck, there is no statesman in Europe capable of coping with the wily machinations of Gortschakoff, Ignatieff and Schouvaloff. The latter diplomatist has got the *Times* Newspaper entirely under his thumb, and that alone will tell you what a powerful mind and persuasive tongue he must be endowed with. The two journals that have conspicuously preserved an independent and patriotic line of action are the *Morning Post* and the *Daily Telegraph*. The latter has even thrown over the Right Honorable W. E. Gladstone who was for so many years the object of its hero-worship.

We are promised a little excitement in the shape of a contested election which will be a novelty; for since Mr. Gladstone threw up the sponge the Conservatives have had it pretty much their own way. The elevation of the Premier to the Peerage has caused a vacancy in the representation of the County of Bucks. It was at first thought, partly out of respect to the retiring member and partly owing to the Conservative proclivities of the constituency, that the Tory candidate (Mr. Freemantle) would be allowed to walk over, but the Honorable Rupert Carington, with a chivalrous temerity worthy of his name, rushed into the breach and in a fiery address announced that he was ready to do battle for the Great-Liberal-Party. Both he and his opponent Mr. Freemantle have been assiduously stumping the county, and in this dull season their respective utterances have been liberally chronicled. After reading Mr. Freemantle's views, the ignorant politician imagines that we are living under a heaven-born administration and wonders how any individual or any interest in the United Kingdom can find aught to grumble about, but when he turns to the withering sarcasms and forcible denunciations of Mr. Carington he is still more amazed that the earth does not open and swallow up such monsters of iniquity as Her Majesty's Ministers. Of course there can be no doubt of the result of the ballot, unless the Conservatives are too confident and consequently dilatory in voting. It would indeed be singular if a county which has unfailingly returned a "blue" Member for more than thirty years should turn round so suddenly and stultify all their past convictions by electing the Liberal candidate.

The case of Mr. Fuller at Agra, which I fancy has created some commotion in India, has not passed unnoticed in England. The Press is almost unanimous in deprecating the arbitrary course pursued by the Governor-General. The sentence passed by the Magistrate might or might not have been inadequate; but it seems little short of monstrous that Lord Lytton should issue the sweeping Minute of condemnation which emanated from his pen. What should we say in this country if the Sovereign or even her Ministers were thus to review the decisions of legal tribunals in England, Ireland, or Scotland? Lord Beaconsfield was specially happy in his selection of the late Earl Mayo to fill the vice-regal chair; let us hope that the present occupant of that important post may not prove a less successful administrator. Some prejudiced writers twit him with having been a popular novelist, a respectable (Sic., *Sarcasticé*) poet, and a safe European-diplomatist, and hence, illogically enough, deduce that he is totally unfit to govern India. I would humbly submit that the Right Honorable Earl at the head of the Government is likely to be a more intelligent appraiser of Lord Lytton's abilities and acquirements than the "man in the street," and that it is premature to affirm, as some journals have begun to do, that Lord Dalling's nephew is simply a "round man in a square hole;" still, we cannot help thinking here in England that he has made a little mistake. Of course the Exeter-Hall party, who hold that a man cannot do wrong provided he be not *white*, praise his action unreservedly.

The late Summer and Autumn have not passed without the usual fertile crop of Railway and other accidents. Many lives have been sacrificed to the Bank Holiday and Excursion Trains, and Coroners' juries, as heretofore, continue to return such vague and unsatisfactory verdicts that no one is ever held responsible for the disasters, and Directors continue to sacrifice all considerations for the sake of the shareholders and a satisfactory dividend and, oddly enough, the shareholders themselves appear to acquiesce in this "penny-wise and pound-foolish" kind of policy; although they are all more or less travellers, and may at any moment become victims and although year after year they have to pay thousands of pounds in damages which might have been saved by the outlay of a few hundreds in extra pointsmen and more skilfully constructed Brakes. The accident, however, *par excellence*, which has thrown all others into the shade, was the terrific boiler-explosion on board *H. M. S. Thunderer*. One of the last completed, most expensive and most powerful ironclads, she was being tried over the measured-mile in Stokes Bay, near Spithead, when, without a note of warning, a tremendous report was heard, the entire vessel was shrouded in a dense fog of steam and smoke and the air was filled with the piercing shrieks and awful groans of the dying sufferers. No less than forty men were killed; and twice that number seriously injured. The largest of her seven boilers had burst owing to the imperfect action of the safety-valves. Sixteen intelligent jurymen sat for more than a month, but they, as usual, failed to elucidate why the valves were out of order, or whose business it was to supervise them.

The last great three-year-old race of the year was brought off the day before yesterday. The

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public had apparently made up their minds that only two horses had a chance of victory, viz., *Kisber* and *Petrarch*, and, barring those two, twenty to one was the betting. The second horse in the race even started at hundred to one. The former had won the Derby in a canter, the latter had carried off the two-thousand-guineas-stakes at Newmarket and the Prince of Wales' stakes at Ascot; but as *Kisber* did not run at Newmarket or Ascot and had beaten *Petrarch* out of sight at Epsom, it was naturally supposed that he would win at Doncaster. It was the 100th anniversary of the great race first instituted by the Marquis of Rockingham, the then Prime Minister of England, and *Petrarch* following in the footsteps of his sire, Lord Clifden, has proved the hero of the centenary. There can be no doubt that in the ordinary course of things he should have emulated the example of his predecessors West Australian, Lord Lyon, and Gladiateur, and should have won the triple crown; but at Epsom there was "something wrong," and without imputing anything to any one I will simply recount a little story for the accuracy of which I can vouch. At the end of last January an officer in Her Majesty's service of sporting tendencies landed at Portsmouth; one of the first persons he met was a well-known individual connected with the betting and money-lending interests. "What turf news ?" said the son of Mars fresh from the arid plains of Hindustan and thirsting for a "tip." "Well, Captain," was the reply, "back *Petrarch* for the Two-Thousand and Leger but," "don't have nought to do with him for the Derby." "The horse as good as belongs to us, and it won't answer our purpose to let him win at Epsom."—*Verbum sap!* The Captain won a tidy stake.

Mr. Stanley, the renowned Correspondent (or Commissioner I believe is now the polite thing to say) of the *Daily Telegraph* and *New York Herald*, continues his raid on the natives of South Africa, and the journals of his doings arrive from time to time in this country. Whether his so-called discoveries have any practical value may be open to doubt, but that he has murdered a large number of the savage wretches whom it is his professed object to "conciliate" is indisputable, and it has occurred to some people of humane disposition that certain of Mr. Stanley's high-handed acts of what he terms indispensible retribution bear a strong resemblance to some of the "Bulgarian atrocities" anent which the public mind just at present is so powerfully exercised. I am not a casuist or a philosopher, nor can I lay claim to the attributes of a "Savant" or a F. R. G. S., so I simply wonder whether it is justifiable to sacrifice an indefinite number of human lives in order to ascertain the latitude and longitude of a lake. Mr. Stanley is brave, clever, energetic, industrious and of an iron constitution. Is his present sensational "civilisade" (as it has been termed) in the interior of Africa, the best field in which to employ the abnormal talents and advantages with which it has pleased Providence to bless him ?

I am, &c.,
PERIPATETIC.

LONDON, 15*th September* 1876.

HIGH COURT—CALCUTTA.

GARTH, C. J., AND MACPHERSON, J.

Beng. Act VIII of 1869, *Section* 98—*Suit for value of Crops—Distraint—Jurisdiction—Small Cause Court.*

The plaintiff made a complaint to the Magistrate against the defendant, his landlord, for forcibly carrying away his crops; whereupon the defendant was tried, convicted of theft, and punished. The plaintiff then instituted a suit against the defendant in the Munsiff's Court, apparently under Section 95 *of Beng. Act VIII of* 1869, *and obtained a decree declaring the distraint to be illegal, and directing the crops to be given up to him. The defendant offered to give up a smaller quantity than was mentioned in the decree. The plaintiff refused to take the same, and brought a suit in the Small Cause Court to recover the value of the quantity he had claimed before the Munsiff and something additional.*

HELD, *that the Small Cause Court had no jurisdiction, and that the suit ought to have been brought under Section* 98 *of Beng. Act VIII of* 1869.

Hyder Ali *v.* Jafar Ali.*

THIS was a reference to the High Court by the Judge of the Small Cause Court of Bhaugulpore in a suit brought by a tenant against his landlord under the following circumstances:—

On the 18th of March 1874, the defendant distrained certain crops belonging to the plaintiff, and on the 27th of the same month applied to the Munsiff under Section 78 of the Beng. Act VIII of 1869 for an order for sale, representing that the crops had been stored on the 25th. The Munsiff, on the same day, made his order under Section 80 of the Act. The plain-

* Reference from the Small Cause Court of Bhaugulpore, dated 4th May 1875.

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tiff, on the same day, viz., the 27th of March, complained to the Magistrate that his crops had been forcibly carried off by the defendant, whereupon the defendant was tried, convicted of theft, and fined Rupees 20.

The plaintiff then instituted a suit before the Munsiff on the 13th of April, apparently under Section 95, although that Section was not mentioned, and obtained a decree declaring the distraint to have been illegal, and directing the property to be given up; but no damages were awarded. The plaintiff then proceeded to execute his decree, but as the defendant would only make over ten maunds instead of twenty-eight maunds demanded under the decree, the plaintiff refused to take the quantity offered to him, and brought the present suit in the Small Cause Court for the value of twenty-eight maunds and something over not mentioned in the case before the Munsiff.

The Judge of the Small Cause Court decided that he had no jurisdiction to try the case, and referred to the High Court the following question:—Will this suit lie? As the defendant refused to make over the whole of the distrained property, which appears to amount to a refusal to withdraw the distraint, has not the plaintiff his remedy by a suit under Section 98 of the said Act (Beng. Act VIII of 1869)?

The parties were not represented in the High Court by pleaders.

The judgment of the High Court was as follows:—

Garth, C. J.—The Judge of the Small Cause Court is right in thinking that the Small Cause Court has no jurisdiction, as the suit is clearly one which might and ought to have been brought under Section 98 of Beng. Act VIII of 1869.—*The Indian Law Reports*, Vol. I, p. 183.

Garth, C. J., and Birch, J.

Res judicata—*Act VIII of* 1859, *Section* 2—*Suit for Rent—Subsequent Suit for Abatement of Rent.*

The plaintiff obtained a putni lease of certain villages from the defendant in 1861 *at an annual rent, and in* 1865 *was evicted from a portion of the property: she took no steps to obtain an abatement; but inasmuch as she did not pay any rent for the year* 1871, *the defendant brought a suit against her for the rent of that year. The plaintiff set up the defence that she was entitled to an abatement of Rupees* 155 *from her rent; the* 155 *Rupees representing the annual value of the property which she had lost in consequence of the eviction. In that suit it was decided that the amount of abatement she was entitled to was Rupees* 42. *No appeal was made against that decision. In a suit brought by the plaintiff for the purpose of obtaining a permanent abatement of her rent she claimed the precise measure of abatement, viz., Rupees* 155 *which she had claimed in the suit brought against her by the defendant.*

Held, *that the question was* res judicata, *it having been raised and decided in the former suit.*

Nobo Doorga Dossee and another *v.* Foyzbux Chowdhry.*

In this case the defendant granted to the plaintiff a permanent putni settlement of certain villages under a lease dated in 1861, at an annual rent of Rupees 1,548 and a premium of Rupees 7,654. In the year 1865, the plaintiff was evicted from a portion of this property; whereupon she brought a suit against the defendant to recover from him a proportionate part of the premium, and certain mesne profits. For this she obtained a decree; the Court especially finding, that this decree would not affect the plaintiff's right to an abatement in her rent for the future. The plaintiff took no immediate steps to obtain any abatement; but inasmuch as she did not pay any rent for the year 1871, the defendant brought a suit against her for the rent due in that year. In that suit the present plaintiff set up as a defence, that she was entitled to an abatement of Rupees 155 from her rent, that Rupees 155 representing the annual value of the property which she had lost in consequence of the eviction. On this suit coming on for trial the Judge went carefully into the question of abatement; and he decided, that the amount should be Rupees 42 instead of the Rupees 155 claimed by the plaintiff. No appeal was made against that decision. The plaintiff now sued for a permanent abatement of her rent, laying the measure of abatement at Rupees 155; and the defence was that the suit was barred by the decision in the former suit.

Baboo *Issurchunder Chuckerbutty* for the appellant.—The former judgment being on a different cause of action is no bar to the hearing of this suit. In the former case a deduction was claimed from the rent due for one year only. The matter came in question collaterally as the suit was one for rent. In this suit the plaintiff seeks to fix the rate at which he is

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* Special Appeal, No. 2546 of 1874, against decree of the Subordinate Judge of Zillah Rajshahye, dated the 24th June 1874, affirming decree of the Munsiff of Pubna, dated 29th August 1873.

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to pay rent for future years. The deduction is on the same ground, but the cause of action in each case is a distinct and separate cause of action. In such a case a previous judgment is no estoppel. See *The Duchess of Kingston's case*;* *Khugowlee Sing* v. *Hossein Bux Khan*;† *Chunder Coomar Mundul* v. *Nunnee Khanum*;‡ *Mussamut Edun* v. *Mussamut Bechun*.§ The test is whether the same evidence would support both cases, *Hunter* v. *Stewart*,‖ where the same question was allowed to be litigated only on a different ground. In the case of *Nelson* v. *Couch*,¶ it was held that to constitute a good plea of *res judicata*, it must be shown that the former suit was one in which the plaintiff might have recovered precisely that which he seeks to recover in the second. The plaintiff could not have obtained what she seeks in this suit, viz., an abatement for future years.

Baboo *Mohini Mohun Roy* for the respondent.—There is an estoppel in this case on the face of the facts. The plaintiff does not claim to have become entitled to a deduction on account of any alteration of circumstances since the first suit, but that the abatement allowed was not properly come to. The issue there was whether the plaintiff was entitled to abatement, and if so, to what extent. It was her fault if she did not place evidence before the Munsiff who tried the case, and there was no appeal. In the Full Bench case of *Chunder Coomar Mundul* v. *Nunnee Khanum*,‡ it was held that the decision of the Collector was not binding in a subsequent suit because there was no concurrent jurisdiction, but here there is a concurrence of jurisdiction as to those matters which both the Civil Court and Revenue Court can decide. The principle upon which the abatement was claimed in the former suit for that one year is the same as that upon which it is now claimed for all future years. That decision necessarily decides in effect, though not in express terms, the very question here raised. The matter is therefore *res judicata*—see *Soorjomonee Dayee* v. *Suddanund Mohapatter*** and *Mohima Chunder Mozoomdar* v. *Asradha Dassia*.†† [Baboo *Issurchunder Chuckerbutty*.—That case was overruled by the Full Bench decision in *Hurri Sunker Mookerjee* v. *Muktaram Patro*.‡‡] In *Rakhal Das Sing* v. *Sreemutty Heera Motee Dossee*,§§ it was decided that although the suit related to the rent of one year, the decision applied also to rent for other years. In *Mohesh Chunder Bandopadhya* v. *Joykishen Mookerjee*,‖‖ the Munsiff decided that the tenant's plea of holding being rent-free was made out. Afterwards, when the landlord sued, he was held to be concluded. The decree made by the Revenue Courts would not be binding from want of concurrence of jurisdiction, but decrees made by the Civil Court in rent suits, since the transfer of rent suits to the Civil Courts, are as good as decrees in other cases under the Code.

* 2 Smith's L. Ca., 6th Ed., 679.
† 7 B. L. R., 673.
‡ 11 B. L. R., 434.
§ 8 W. R., 175.
‖ 8 Jur., N. S., 317.
¶ 15 C. B., N.S., 99.
** 12 B. L. R., 304.
†† 15 B. L. R., 251.
‡‡ 15 B. L. R., 238.
§§ 23 W. R., 282.
‖‖ 15 B. L. R., 243.

Baboo *Issurchunder Chuckerbutty* in reply.—The effect of the decision in *Hurri Sunker Mookerjee* v. *Muktaram Patro** is to overrule some of the previous cases on this question. No doubt, where the matter is necessarily decided in the former suit, there would be an estoppel, but the matter now in dispute could not have been decided in that case either in express terms or otherwise, because the Court had no jurisdiction to try it. The decision therefore was not the decision of a competent Court.

Garth, C. J., (after stating the facts as above continued) :—

The plaintiff brings this suit for the purpose, as she says, of obtaining an abatement of her rent for the future; and she claims in this suit the precise measure of abatement, Rupees 155, which she had claimed in the suit brought against her by the defendant. The defendant's answer is, 'this question which you now seek to raise, has already been decided between us in the former suit. You claimed the same abatement then as you do now. You attempted to establish it upon the same grounds. You went into the question, not as if the abatement were for one particular year, but for the whole remainder of your interest; and from the very nature of the question, you could not have gone into it upon any other basis.' The plaintiff's reply to this is—'no. Your claim then was for the rent of one year only: my defence must necessarily have been confined to that one year; and the result could not bind either of us for the future.' This contention raises a very nice point upon the doctrine of estoppel; as to which during the argument I confess that I personally have felt considerable difficulty.

There is no doubt as to what the law is upon the subject of estoppel. The difficulty is, in applying that law to such a case as the present. Each year's rent is in itself a separate and entire cause of action, and if a suit be brought for a year's rent, a judgment obtained in that suit, whatever the defence might be, would seem only to extend to the subject-matter of the suit; and leave the landlord at liberty to bring another suit for the next year's rent, and the tenant at liberty to set up to that suit any defence she thought proper.

But it is said, on the other hand, that in the former suit between the defendant and the plaintiff, the entire question of what ought to be the permanent abatement of rent during the

* 15 B. L. R., 238.

whole period of the lease, was substantially and necessarily tried and determined, and that they are neither of them at liberty to re-open that question. The principle upon which the abatement was made, the value of the land, the measurements, and other circumstances which form the materials upon which the Judge would estimate the amount of the abatement, would be applicable to one year as well as to another, and what was a just and proper abatement for the year 1871 would be an equally just and proper abatement in each succeeding year.

There certainly appears to be great weight in this reasoning, and there is no doubt that substantial justice will be done by adopting it.

Even assuming that the judgment in the former suit were not binding between the parties as an actual estoppel, it would afford such cogent evidence between them upon the point, that the Judge in this suit (in the absence of some entirely fresh materials) would be perfectly right in acting upon it; and we cannot doubt, that if we were to send the case back to the Lower Appellate Court with this intimation, the Judge would act upon it, as a matter of course; and the parties would only be put to additional expense to no purpose.

But happily, we are not without authority in this Court to guide us in coming to a conclusion. The cases which were cited in argument by the defendant's pleader—*Mohima Chunder Mozoomdar* v. *Asradha Dassia,** and *Rakhal Das Sing* v. *Sreemutty Heera Motee Dossee,*†—seem very much in point; and we think that we ought to act upon them. In one of those cases, the suit was brought by a landlord for one year's rent. The answer was, the land is rent-free—and a decree was passed against the landlord upon that ground. Another suit was afterwards brought by the landlord for another year's rent; and it was held, that as between the parties, it had been decided, that the land was rent-free; and that this decision was binding upon them not only for the one year, but for all future years.

In accordance with this, we hold that the question of abatement of rent has been determined in the former suit between these parties not only for one year 1870, but for all future years. The appeal will therefore be dismissed with costs.—*Idem,* p. 202.

* 15 B. L. R., 251. † 23 W. R., 282.

OFFICIAL PAPER.

THE CULTIVATION OF THE CAROB TREE IN INDIA.

Proceedings of the Madras Government, Revenue Department, 10*th July* 1876.

Read the following letter from A. O. HUME, Esq., C.B., Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, (Agriculture and Horticulture,) to the Hon. D. F. CARMICHAEL, Secretary to the Government of Madras, Revenue Department, dated Simla, 9th June 1876, No. 4/224:—

I AM directed to forward, for the information of His Grace the Governor in Council and for distribution to District, Forest, and Jail Officers, copies of a Note on the subject of the cultivation of the Carob tree (*Ceratonia siliqua*). Copies of intructions in regard to the measures likely to secure its successful cultivation are also forwarded.

2. The Government of India will endeavour to procure seed for any officer who may wish to undertake the cultivation of this tree, on his showing that the locality in which it is proposed to try the experiment is favorably situated as regards soil, climate, and other conditions, and who will engage to grow the seed carefully, afford the young trees protection from the ravages of cattle, sheep, and goats, and report promptly and regularly the results of his experiment.

ENCLOSURE No. 1.

The Carob Tree (Ceratonia siliqua), *with reference to its Cultivation in India.*

The *Ceratonia siliqua,* a member of the natural order Leguminosæ, sub-order Cæsalpiniæ, and a rather close ally of the Indian tamarind, is extensively grown on the shores of the Levant, in Turkey in Asia and the island of Cyprus, on the Mediterranean Coasts, both African and European, in Italy, the islands of Sardinia and Malta, and Spain, its culture being particularly extended in Southern Italy and Sicily. In Cyprus it grows wild, and is very abundant. Some of the cultivated Cyprus varieties are held in great esteem as the best existing varieties of the tree. Growing in most soils, and not requiring much moisture or care, it gives but little trouble, and its cultivation is extending in the island every year. The yield of fruit, however, is affected in hot and dry seasons, the quantity being comparatively small and the quality inferior. The bean is exported from Cyprus chiefly to the Russian ports of the Black Sea. The tree also grows in great

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abundance in Palestine, whence the bean is exported to Alexandria and Constantinople.

2. The synonymes of the tree are: Spanish, Algarroba; Portuguese, Algorroba; Italian, Carrubio and Caruba; German, Karob-baum and Johannisbrod-baum; English, Carob, Locust bean, and St. John's bread. The German and English reference to the apostle is derived from the idea that these beans were the "locusts" on which, as the Scriptures say, he fed in the wilderness. In Greek, Balfour tells us (*Class Book of Botany*) the tree is called Keratia or Keratonia, and he adds that in Luke xv. 16, the word Keratim, which has been translated "husks," is taken to mean the fruit of the Carob tree. This conjecture of Professor Balfour is supported by the opinion of Archbishop Trench (from whom perhaps Balfour adopted the view he has expressed) in his *Notes on the Parables*, where it is said that these husks are "the fruit of the Carob tree."

3. The other name of the tree clearly comes through the Spanish from the Arabic name of the tree *Kharoub* or *al Kharoub*. In India it is known by the Arabic name, and is also sold in the bazaars under the name Kharnub Nubti and Kharnub Shami, or Syrian Kharnub, seemingly a corruption of the Arabic word.

4. The tree bears a thick, flat, brown curved pod, containing hard red seeds resembling those of the tamarind, embedded in a red fibrous pulp of sweet and somewhat astringent taste. These seeds are said to have been the original carat weight of jewellers. The pulp, which is very nutritious and gently aperient, is the useful part of the tree. The crop is very abundant trees sometimes yielding from 800 to 900 lbs. of pods. In countries where the tree is grown it is used for human consumption, especially in times of scarcity,* and at all times forms a nourishing, palatable, and fattening food for horses, mules, asses, and horned cattle. "The plant, seeking its nourishment under ground, is so independent of surface irrigation and so retentive of life that, according to M. Bové, a tree supposed to be three hundred years old, which was cut down during the French invasion of Egypt, sprang up again thirty years after on wells being sunk in its neighbourhood." (*Voigt. Hort. Sub. Cal.*)

5. The bean is now largely imported into England, where it is made up with oil-cake into food for cattle. Morton, in his Cyclopædia of Agriculture, speaks favorably of it as cattle-food, and it is said that it forms one of the principal ingredients of the well-known "Thorley's food." The pulp is also said to be chewed by singers to improve the voice. The Turks make use of the pulp for sherbet, as the people of India do with tamarind pulp, mixing it with liquorice root and fruits. The bark is sometimes employed as a substitute for oak bark in tanning hides, and an invention has been patented at Paris for the application of the beans to the production of a species of glucose or fermentable sugar adapted to a variety of manufacturing purposes.*

6. In India it is held in repute as an astringent, and is employed in cases of cough accompanied with much expectoration. It is imported for medicinal purposes from Kabul, and is sold as high as Rupees 10 the seer in the markets. It is not as yet used for food, as indeed is sufficiently manifest from this extremely high price. In Cyprus £4-10-0 per ton is considered a high price and much above the average: the Indian price is equivalent to a rate of £1,220 per ton.

7. The history of the introduction of this tree into India greatly resembles the history of the experiments made with many other useful vegetable productions. The process has generally been somewhat as follows:—The article is first lauded as a most useful thing, and its acclimatisation declared to be most desirable. Then there is a lull. A little later, some official, or perhaps some non-official gentleman, with a taste for these matters, sees the plant growing in some favorable locality, is struck with its appearance, introduces it with more or less success, and then leaves the district or the country, and the subject drops out of sight with him. A little later, the whole process is gone through again, and so on *da capo;* the very slightest reference, if any, being made by each successive experimenter to the results of the trials made before his time. Thus the experiment, which might, if carefully watched, finally show in two or three years whether it was worth pursuing or not, drags on its weary course through thirty and forty years with indecisive results at last. The moral of the story is, that such experiments should be carried out in suitable conditions under the close supervision of a central Government department, charged especially with such business and competent to undertake it.

8. The main fields of experiment with the *Ceratonia siliqua* have been in the North-Western Provinces, the Punjab, and Madras.

In the North-Western Provinces its introduc-

* In his Commercial Report on Cyprus for 1873, a year of great distress in the island, the British Consul writes:—"Great numbers of the quasi-starving peasants were obliged to subsist on the edible roots of such indigenous plants as they could dig up in the fields, using also locust beans to a large extent in lieu of cereals."

* Ure's Dictionary of Arts, Manufactures, and Mines, Ed. 1872.

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tion dates as far back as 1840, having been recommended by Professor Lindley, through Dr. Royle. In that year the Superintendent of the Saharunpore Garden reported to Government that several hundred plants had been raised for eventual distribution along the dry and sandy tracts of those provinces. He stated that at that time the pods were selling in the markets at Rupees 10 the seer.*

Apparently the experiment came to nothing after all, for twenty-two years later the Superintendent of the Gardens, Dr. Jameson, reported to Government that he had *en route* to England visited Malta, and had been much struck with the growth of this tree in the most barren, dry, and stony places, and with its useful qualities, which he thus detailed: "It seeds immensely. By the poorer classes it is ground and mixed with grain, and when baked in the oven it is any thing but disagreeable. In seasons of scarcity it is, therefore, much used by the poorer inhabitants. It is constantly given to horses and mules in the proportion of one measure Carob beans to two measures of Barely, and on this food they both work and thrive well." Dr. Jameson accordingly brought with him a large quantity of seed, from which he raised a number of plants to test the value of the tree "in the dry places of the North-Western Provinces."†

In the following year (1863) he reported that the tree had been extensively propagated and distributed, but had not, though it flourished well, yielded pods in such quantity as in Malta and Italy. This however, he said, might be due to the trees being too young. This remark I am unable to understand if Dr. Jameson referred to the produce of the seed of the previous year, for the tree never fruits until it is seven years old at least.

In the next year (1864) no reference was made in Dr. Jameson's report to these trees, but two cases of seeds are mentioned as having been received from the India Office, placing the Superintendent in a position to distribute the tree largely throughout the North-Western Provinces.

From this time down to 1872 official records, as far as I can ascertain, are silent on the subject of this experiment. In that year, however, we find it stated that many trees (among them the Carob) had been raised from seeds received from the India Office and naturalised in the plains of the North-Western Provinces.

9. In 1862 Mr. G. Ricketts, C. S., of Allahabad, brought seed with him to India and sowed some at Benares and Cawnpore. One of the trees grown at Benares was afterwards removed to Cawnpore, where it grew extremely well, standing the climate perfectly. In 1873, when Mr. Ricketts saw it, the tree was nearly 25 feet high and 9 inches in diameter.

10. The latest experiment in the North-Western Provinces was tried with some seed presented to the local Government in August 1874 by Mr. W. S. Halsey, C. S.; most of the seed was sent to the Superintendent of the Botanical Gardens at Saharunpore, with instructions to give the plant all possible chances of successful growth. Of the progress of this experiment we have no account.

Some of the seed was also sent to the Commissioner of Kumaun for trial, and by him was distributed to gentlemen whom he thought likely to take an interest in the experiment. Some of the seed, the Commissioner reported, germinated freely at Haldwani, and he proposes to try whether the tree will mature in the severer climate of the Bhabur. This is unlikely, for, as the Secretary remarks, the climate of Kumaun is too cold for it. This is clear from the fact reported by the Commissioner that some plants which germinated in 1873 were in March last only a foot high. Kumaun is not a good locality for this tree.

11. In the Punjab the tree seems to have been introduced by Mr. Charles Gubbins, C. S., between 1842 and 1844. He imported considerable quantities of seed from Italy, and sowed it in the districts of Panipat, Gurgaon, Rohtag, and Delhi, also distributing seed to natives. In 1849 many of the trees thus planted were alive about Delhi, but all trace of them seems to have disappeared, and no record of the experiments exists, all Government documents at Delhi having been destroyed by the rebels in 1857. An unsuccessful attempt seems to have been recently made to grow the tree in the Queen's Gardens, Delhi.

The tree was re-introduced into the Punjab by Mr. George Ricketts, some of the seed imported by that gentleman in 1862 having been sown at Lahore and Ferozepore. In 1866 Dr. George Henderson stated to the Agricultural and Horticultural Society of the Punjab that there were then four large trees in Lahore in the gardens of gentlemen,—one which was measured was three feet in girth at the ground, and they were all about the same size. One of them was in fruit when Dr. Henderson mentioned the subject. These were the produce of the seed brought out in 1862 by Mr. Ricketts. Trees produced from this seed were still growing at Lahore and Ferozepore in 1873, and in that year Mr. Ricketts sent the Agricultural and Horticultural Society of India some seed

* This statement I find repeated in various successive papers, including that most useful book, Mr. Baden-Powell's Punjab Products. Apparently the import of the article as a drug is small, and the price is not subject to great variation.

† Letter to the Government of the North-Western Provinces, No. 318, dated 26th May 1862.

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obtained from the trees at Ferozepore. Mr. Ricketts says it has been proved that the tree will thrive in the Punjab and the North-Western Provinces.

The seeds, he says, should be well soaked before planting, and the trees, when planted out, should not be too far from each other to ensure their fruiting.

The explanation of this suggestion will be found in paragraph 13 in Dr. Henderson's Memorandum, which is the completest account on this subject which the Government possesses.

Dr. J. L. Stewart in his *Punjab Plants* (Ed. 1869) stated that the tree had been introduced into the Punjab some years, and in some parts had thriven, and was spreading though it did not grow rapidly, and had not yet ripened its seed, or indeed produced pods, except in rare instances. "One or two female trees existed, Dr. Stewart says, in one of the Lahore gardens, and were cut down by the owner, Vandal-like, probably because he did not care to be bothered by questions from the Agri-Horticultural Society as to their progress. It is curious that in the bazaars the pods are sold as an astringent medicine under the name *Kharnub Nubti*, probably finding their way from Syria by devious routes."

In a letter, dated the 3rd January 1876, the Financial Commissioner of the Punjab reports that of the Carob trees in Lahore, those in the garden of Mr. Ludlam have grown well and produced seed freely; these trees are supposed to have been planted about 1858. The largest is now four feet in girth, a yard from the ground, and 25 feet in height.

At Madhopur some trees were planted about eight years ago (1868) in the church grounds. These seeded freely for the first time in 1874, and again in 1875, and five hundred seedlings have been raised. Captain Garstin, Executive Engineer in charge of the Bari Doab Canal at Madhopur, proposes to form a plantation of young trees on the bank of the canal where they can be irrigated. A few trees were planted out on the canal, and were alive at the end of the year. Captain Garstin says that they ought to be planted tolerably close together, to admit of fertilisation, and that they should be protected from cattle, which are very partial to the leaves, browsing on them freely. Seedlings and seeds are now available at Madhopur for distribution.

The Financial Commissioner further reports that "there are many Carob trees in the Shahpur District in the church compound, and the Government garden at Sodi, in the Salt Range. The former are apparently, or were in 1872, all of one size, and did not fruit. Those at Sodi fruited freely, and Mr. Egerton has received seed from the Shahpur District, which has germinated in England."

12. The latest experiment in the Punjab, as in the North-Western Provinces, is due to Mr. W. S. Halsey, who last year presented to the Government of the Punjab a quantity of seed obtained by him while in Italy during that year accompanying the gift with the following memorandum on the cultivation of the plant prepared by the Italian Department of Agriculture and Commerce:—

"The Carob is an evergreen; it belongs to the order of Leguminosæ, and resembles the Tamarind in some of its characteristics.

"The size of the tree varies with the climate and the soil where it is cultivated. In Central Italy, where it is difficult to make it fruit, it seldom grows above 20 to 25 feet. In Southern Italy it reaches 36 to 40 feet and possibly higher. It is easily cultivated by sowing in the open ground or in suitable pots, and the young trees need not be finally planted out for four or five years.*

"The habit of the plant is to grow very bushy near the roots, but provided the shoots at the base are taken off, it will grow large and thick above, and will require a space of 15 to 16 feet between each tree.

"The climate best suited to the Carob must be hot, and to a certain extent dry; and with these qualities it is immaterial whether the land be level or hilly.

"It bears its first fruit when it is about ten years old, and gives its largest crop between the ages of fifteen and twenty years, but it goes on yielding for many years, as it lives to a great age.

"The cultivation is very much restricted to the south of Italy, with the exception of the provinces of Savona and San Remo in Northern and Portoferraio in Central Italy. It is grown also in the provinces of Cagliari and Sapari in Sardinia,—not, however, to any very great extent.

"The cultivation is very important in Sicily especially at Modica and Noto.

"The annual produce in these two districts is estimated at 52,500 tons, of which a large portion is exported to England.

"The districts in Southern Italy, which cultivate the largest quantity of Carob, are in the plain of Puglia; in fact, the neighbourhood of Bari produces annually 8,750 tons, which are generally exported to foreign parts, and the

* In this case it would be advisable to shift the plant each year.

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neighbourhood of Foggia 150 tons ordinarily exported to Venice and Trieste.

"In Italy the Carob is used as food for beasts, especially for mules and horses, particularly for horses, because they feed the mules, which they work very hard, on Oats and Barley and in some places with beans.

"Horses which are let on hire are generally fed all the year round on Carob seed mixed with bean in the proportion of one-third to one-fourth.

"In some places the poorer classes use it as food, but this is to an insignificant extent.

"The income derived from a hectare of land cultivated with the Carob is, according to Professor Ottari, larger and more certain than that of the better kinds of forage, because the tree can bear the heat better than green crops.

"The produce of the Carob tree, well manured and deeply trenched during the first year (because in after years the roots become too superficial), is at least about 9 tons the hectare; that is, equivalent, as regards nourishment, to 44 tons of green food.

"The foliage also of the tree serves as food for the beasts. Alcohol is distilled from the seed, and an excellent oil for burning is also extracted from them. The bark is used for tanning.

"At Naples they use the wood for constructing wheels with teeth and also for furniture.

"The annual production of the Carob in Italy Proper is calculated at 79,750 tons, and, though large quantities are exported annually, an equivalent amount is imported from Turkey, Greece, Egypt, &c."

13. Dr. Henderson having been asked for his opinion, wrote the Note referred to in paragraph 11. The substance of this Note is as follows:—

"The value of this tree for the Punjab depends on the fact that it will grow and thrive in the most arid tracts; that it requires almost no cultivation: and that it prefers excessive heat and a soil containing lime: kunkar soil seems to suit it well.

"*Habit of the tree, climate, soil, &c.*—The Carob grows to a height of 25 to 35 feet. There are now many trees in Lahore quite 25 feet high. As far back as June 1866, I find in the Proceedings of the Agri-Horticultural Society of the Punjab (page xxxvi) a Note of my own regarding a tree in a private garden in Lahore, which had then a stem three feet in girth at the ground.

"The Carob is evergreen; it is readily propagated by seed; but I have failed to get either cuttings or layers to strike.

"In the Punjab the seed should be sown towards the end of the cold weather,—say in January or February,—in a seed-bed where it can be watered, or in pots. Most of it will germinate in April and May.

"I find that saline soil or saline well-water kills the young plants. Canal water and soil without *reh* should, therefore, be selected. There is a peculiarity about the germination of Carob seed which, no doubt, has something to do with the fact that it is a tree of dry and parched countries. It is this, that of a pound of seed sown in February, three-fourths will germinate within a month or two, more will come up when the rains set in, and some will lie dormant in the ground for one or two years. To cause the seed to germinate quickly, I always soak them in a vessel of water hung up in the hot sun and make the gardener examine them every other day and pick out all those for immediate sowing which have swollen by imbibing water. I have now a quantity of seed gathered last June in Lahore which have been soaked in water exposed to the hot sun daily for 45 days, and, although they have been examined every day, I do not think that a dozen have yet shown signs of germinating.

"The Carob is diœcious, in other words the male, or staminiferous, flowers are found on one plant, and the female, or pistilliferous (fertile), flowers on another. This necessitates grafting to render a solitary tree fertile, but in any case grafting is to be recommended, because just as in the case of the Mango and most other fruit trees, varieties don't come, true from seed. Several bushels of fruit ripened in gardens about Lahore in June last, but most of the beans were only about half the size of those I have seen in Italy and Malta. They were also much less sweet and very much more astringent, and though I believe they would have been valuable as food for cattle, I found them too astringent to be very palatable.

"This convinces me that if the tree is to be extensively grown here a few good grafted trees must be obtained, and I shall undertake to get them out from Italy if necessary.

"In grafting the usual mode of proceeding is to preserve on each plant in the nursery three shoots only; on two of these female grafts are put, and on the third a graft off a male tree; afterwards the male branch is allowed to grow only just sufficiently to produce enough pollen to fertilise the flowers on the other two or female branches. Where trees are plentiful they fertilise each other by pollen being blown from a considerable distance by the wind, and I have found isolated female trees in Lahore produce abundance of fruit, although no male

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tree was within several hundred yards as far as I could ascertain.

"The Carob likes a dry soil containing lime, but will grow and thrive on almost any *soil that is not marshy*. In damp marshy ground it *dies*; it does not thrive either in Saharunpore or Calcutta. The climate cannot be too hot. I never saw even very young seedlings killed by the hot wind (140° to 160° F.),* except where there was saline matter in the water, or soil, or where too much water was given.

"As to the other limit, I believe it is found that wherever the orange will ripen its fruit without artificial protection, the climate is not too cold for the Carob. At Lahore on the worst soil about the Central Jail it thrives well, in fact, all over Lahore. On the salt range it thrives even better, and grows very much more rapidly.

"I believe it has most chance of turning out to be valuable where the Olive (Kow) grows wild. Carobs, Olives, and Vines are usually found growing together, and often on ground unsuitable for grain crops. They would all thrive equally well here on what district officers now call unculturable land, and what the people call "bungar." This I have proved at the Central Jail. I have now French Olives as large as walnuts; the only two trees I have bore fruit abundantly last year and this year, and of twenty sorts of the best European Vines not one has degenerated in the least. These have all been grown on soil which seven years ago was unculturable. I planted it with thousands of Parash cuttings, but in spite of every exertion all died except one. Now it is covered with Vines, which bear as good fruit as I ever saw or ate out of an English hot-house.

"This is the third or fourth attempt which, within my knowledge, has been made to introduce the Carob into the Punjab, and unless the experiment is now carried on in a less desultory way than former ones, I doubt if it will have any better results.

"Thirteen years ago I urged on the Agri-Horticultural Society here the advantage of getting a large experiment made with the Carob tree. Some bushels of seed were then obtained from Europe, and were distributed. I did not then know that the same thing had been done five or six years before. Almost every year since I came to the Province seeds have been sown in the Agri-Horticultural Society's Garden and plants distributed, and we now know, for certain, not only that it will live and thrive, but that it will fruit freely six or seven years after planting. I therefore trust that an experiment will be made to form a plantation of 50 or 60 acres on some of the waste land about Lahore, where it would be within half an hour's ride of all the Government officers. If put away in the desert it will be lost sight of and forgotten within five years, until some energetic officer rediscovers it.

"I merely mention this to show that the plantation should be close to head-quarters, so as to excite and keep up an interest in it. Had Government seen fit to encourage the starting of the jail farm proposed by me four years ago, such an experiment could have been carried out without almost any expenditure beyond the labor of ticket-of-leave men, and in eight years the actual money value of the tree would have been thoroughly tested once for all. If a quantity of the seed is now made over to me at the jail, I can raise plants in large pots. They will not cost, pots and all, above Rupees 250 per 10,000. If afterwards it is decided to form a plantation of these and of European Olives, the waste ground can at any time be purchased for a trifle.

"The Punjab now abounds in corn. I doubt if it ever will abound in Vine, unless it be grown in Kashmir; but oil is now very scarce and of very inferior quality, and, as pasture land gets encroached on by grain crop, the supply of butter will probably get less and less up to a certain limit when green crops will become more extensively grown; but there can be no doubt that in many submontane districts the Olive would yield an enormous amount of oil fit for human food; and if the introduction of the Carob is to be carried out systematically, as in the case of Tea and Cinchona, the Olive should be introduced along with it, or rather multiplied, for the plants introduced by me in 1867 have now increased to thousands I believe.

"I should mention that ten days ago I received from the Assistant Secretary to Government several pounds of the Carob seed lately sent out by Mr. Halsey. I sowed it all the day after I received it, having soaked it a night in tepid water. I did not expect much of it to germinate till Spring, but I am happy to say every single seed has come up and most of them have opened their seed leaves."

The result of Dr. Henderson's paper was, that the Financial Commissioner recommended that the experiment suggested should be tried on suitable ground near Lahore, and in compliance with this suggestion 35 acres of land near Government House were made available for the purpose. The Conservator of Forests was then supplied with five seers of seed, and told to form a plantation. In June last year operations were commenced and a considerable portion of the land sown with seed.

14. In Madras the introduction of the tree

* The British Consul in the island of Cyprus, however, says that a too hot and dry season injuriously affects the quantity and quality of produce.—O'C.

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as food for cattle was suggested by Sir Gaspard le Marchant, Commander-in-Chief of the Madras Army, in 1866. At that time there were some plants in the garden of the local Agri-Horticultural Society, raised from seed brought from Cairo in the previous year by Dr. G. Bidie. A further supply was obtained in 1866 from Malta, and packets were distributed, through the Board of Revenue, to the Collectors of various districts. Dr. Bidie also said that as the Society was in a position to give the plant, which promised to be so useful, a fair trial, no pains would be spared to render the experiment successful. The result of the Society's experiments is thus reported in a letter from the Honorary Secretary, dated 13th August 1875: "From that date [viz., October 25, 1866] nothing further appears in the records of the Society, but from report it is ascertained that the seed germinated and several healthy plants were raised which subsequently died." And I will note in this place that of all unsatisfactory experiments conducted in India, those conducted under the direct supervision of Agricultural and Horticultural Societies have been the most unsatisfactory.

The seed distributed by the Board of Revenue was sent to Nellore, Bellary, Kurnool, North Arcot, Cuddapah, Salem, Trichinopoly, Coimbatore, Tinnevelly, Madura, South Canara, Oossoor, and Sydapet. The results were reported on in 1867 and 1868, and are as follow:—

In Trichinopoly no record remained of what had been done with the seed, except that about three dozen had been made over to one of the residents and sown by him. They germinated, but soon died off or were eaten by insects. Five were still alive in 1867, but in a bad way, and no further record of these exists.

In Bellary the seed was distributed to the Tahsildars and to a European gentleman. The result was a failure. The seed either did not germinate, or the seedlings soon died off.

In Coimbatore and Nellore the seed was given to ryots, and none of it germinated.

In Tinnevelly and Cuddapah none of the seed germinated.

In Madura the seed either did not germinate, or the seedlings died off at once.

In North Arcot sixteen healthy young plants were obtained. Of these six were lost "from the attacks of white-ants and other mischances." The remainder looked healthy and vigorous, and had attained six feet in height in December 1868. These trees were then in the Government Garden at Chittoor, and had been seen a month previously by Dr. Cleghorn, who "thought very highly" of them. No further record of these is to be found in the papers.

In Kurnool the seed was sown by an officer, and the seedlings were coming on well, when he was suddenly ordered to Abyssinia, and forgot in the hurry of leaving to recommend them to somebody's care. The result, of course, was that they came to grief. Two were still alive when the officer returned, although they had been completely neglected. He was confident that the seedlings would have thriven if ordinary care had been given to them, and that they would succeed in that district.

In South Canara (Mangalore) the seedlings soon died off, "being apparently unable to penetrate the hard laterite soil."

In Salem (Oossoor) only one seed germinated, and that soon died off.

15. Of the other experiments there appears to be no record. The most recent papers on the subject inform us that—

(1.) There are ten young trees on the Pulneys raised from Italian seed, but the elevation at which they are growing (6,000 and 7,000 feet) is against their success.

(2.) In North Arcot an experiment conducted by the Collector failed, the seedlings dying off.

(3.) At Aska, in Ganjam, Mr. Minchin, the owner of a sugar factory and distillery, has sown some seed in his garden, with apparent success so far.

(4.) There are upwards of two dozen plants in the Government Gardens at Burliar, on the Nilgiris, "all of which are healthy and making vigorous growth." Some of these are nearly four feet high. There are also twenty-seven small plants in the coffee estate of Colonel Scott, at Thymullay, on the southern slopes of the hills. Some of these on the upper part of the estate are not very vigorous, and being at too great an altitude their ultimate success is doubtful. The others lower down are reported very healthy. The Superintendent of the Botanical Gardens thinks the tree could be grown in the coffee districts of Wynaad and Mysore.

No experiments seem to have been tried in any of the other districts from which reports have been furnished by the forest officers. One of these officers (a Deputy Conservator) says: "I am unable to identify the tree by the botanical name given [*Ceratonia siliqua*]. Neither Drury's nor Balfour's works contain the name, so far as I can observe, and these are the only books of reference in this Office." (The tree is

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noticed in Balfour's Cyclopædia, 2nd Ed., Vol. I., page 111.)

16. In the Central Provinces an experiment appears to have been made by the Deputy Commissioner of Narsinghpur in 1873 with seed supplied to him by the Agricultural and Horticultural Society of India which the Society had received from Mr. Ricketts. From this seed seventeen plants were raised, but not more than three survived, the others having been destroyed by white-ants, "which are very numerous and destructive at Narsinghpur." The survivors are healthy and likely to prosper. One is six and the two others more than four feet high. The Deputy Commissioner believes that the tree would grow freely in that district, and that the experiment would have been completely successful, but for the white-ants. No experiments appear to have been tried elsewhere in the Central Provinces.

17. In Bengal the experiment appears to have been repeated two or three times. In September 1873 Mr. Ricketts presented the Agricultural and Horticultural Society with some seed, but what came of it, except that some was sent to the Deputy Commissioner of Narsinghpur in the Central Provinces, does not appear.

In March of the present year Mr. Ricketts presented the Society with thirty seedlings of the tree. These, I have ascertained, are in the garden of the Society at Alipore in a more or less unhealthy condition.

The tree will probably not succeed in the water-logged soil of the Lower Provinces of Bengal, and it would be well if these plants could be transferred to the North-Western Provinces.

Dr. King, Superintendent of the Botanical Gardens, reports, in reply to a reference made to the Government of Bengal, that "private attempts are said to have been made to introduce the tree in this province. There is at present one small tree in this garden, and within the past year I have sown a good many seeds. The tree is of slow growth, so that it will be years before any result can be got from these. I do not, however, think it likely that the Carob will thrive in the Gangetic delta, of which the climate and soil are so totally different from those of the countries where the Carob flourishes." And he mentions Oudh, the Punjab, and the North-Western Provinces as much more likely to suit the Carob than Bengal.

18. In Oudh the tree seems to have done remarkably well at Lucknow. In his report for 1871-72, Dr. Bonavia stated that he had an avenue of 33 of these trees raised from seed imported many years ago. Some of them were 18 and 20 feet high, and in very healthy condition. Eleven fruited during the year, and again more abundantly during the following year. Dr. Bonavia tried to propagate the tree by layers, but found, as has been found by everybody, that the only efficacious mode of propagation is to raise it from seed. In his report for 1873-74, Dr. Bonavia records that the tree stands frost better than was supposed. On the morning of the 8th January, when the minimum thermometer on the grass indicated 5° 3′ below the freezing point, and vast damage had been done to other plants, not a leaf of the Carob trees was touched by the frost.

19. On the 20th October last, Her Majesty's Secretary of State for India was asked to obtain from Southern Italy and send out to this country one hundred pounds of fresh seed. This seed is intended for the Government of the North-Western Provinces, which proposes to grow the tree in Kumaun. It seems doubtful, however, whether the tree has a fair chance of success there, and it may be advisable to consider now what had best be done with the seed when it comes. I would venture to suggest that some should be sown in various parts of the North-West and Punjab, the Central Provinces, and Madras. In this last province the failure of the experiments already made undoubtedly resulted from carelessness and ignorance. No seed given to Tahsildars and cultivators anywhere has the least chance of success. Over and over again it has been demonstrated that seed entrusted to "intelligent ryots" might just as well have been thrown into the sea. It is unnecessary to discuss the reason of this result; it is sufficient for the present to say that the result is almost invariably the same. I would venture to suggest that no seed should be distributed to anybody, European or Native, but that it should all be sown carefully in pots in some central spot or spots under careful professional supervision, and that the seedlings should be distributed in due time when properly established. This course would, no doubt, be at first more expensive than that which has been hitherto adopted, but ultimately it would, I believe, be found more economical. The seed might be sown at Lahore, Allahabad, Saharunpore, Nagpore, and Burliar (the Government Gardens), and the seedlings be distributed thence from time to time. I would also suggest that good use might be made of the agency of station masters on the lines of railway, both State and guaranteed. The country all along the North-Eastern extension of the Madras Railway, from Madras to Raichore, seems well adapted for the growth of the Carob, and much in want of a tree of the kind. It is a dry, stony country where water is scarce, and is mostly only to be had from tanks (which are chiefly natural hollows embanked at the lowest end). In this tract failure more or less complete of the crops is of

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not unfrequent occurrence, and the cattle are the first and principal sufferers. Groves of trees here which would provide them and their owners with food in times of scarcity would be a great blessing. If the seedlings were planted about the stations, where there is always sufficient water, and where they would be subject to frequent inspection by officers of the district and of the Railway passing to and fro, they would be much more favorably situated than if planted in some out-of-the-way taluk where they would languish, neglected, and out of sight. Some little inducement to station masters, of the nature of that which has resulted in the embellishment of the stations of the Great Indian Peninsular Railway, would probably ensure unintermitting attention from the station authorities. In such places, too, forming points of resort for Natives from all parts of the district a general acquaintance with the qualities of the tree would soon be formed and spread through the country.

These remarks may also be held to apply to the State lines of Railway in the Punjab, the North-Western Provinces, and Rajputana, which afford even greater opportunities for success in this undertaking. Canal and Forest officers also might be entrusted with seedlings, and held personally responsible that due care is given to them.

(Signed) J. E. O'CONNOR.

SIMLA, 10*th April* 1876.

Instructions for the Cultivation of the Carob Tree.

The tree grows readily from seed, which should be well soaked before sowing. It is fit to sow when it shows by swelling that it has imbibed the water. Soaking may sometimes continue for a month or even more before the seed swells, but fresh seed will not want soaking for more than ten or twelve hours.

2. Cuttings and layers should not be attempted. It is difficult, if not impossible, to get them to strike.

3. To ensure germination, sow the seed in pots and transplant when the seedlings are a month or two months old. The best time for putting out the seedlings is just before the setting in of the rains. The seed will probably not all come up together: sometimes germination is much delayed.

4. Cattle, sheep, and goats must be kept away from the plants, the leaves of which they eat greedily.

5. Manuring and trenching help the plant the first year; afterwards no particular care is required. The bushy branches thrown out near the roots should be removed: the tree will then develop at top.

6. Saline soil and saline well water must be avoided: they kill the young plant. Use canal or river water, and soil not impregnated with reh, and avoid marshy or water-logged soil. The tree will thrive in almost any soil but these, but it particularly likes a dry soil, with a limestone formation. Tracts where kunkur occurs would suit it well.

7. Heat and sun it will bear to any extent, and in hardly any part of the plains is the cold at any time sufficient to affect it materially.

8. The flowers being diœcious, *i.e.*, the male and female flowers growing on distinct plants, it is useless to grow solitary trees, or to grow them in lines, for then fertilisation (which is effected by the pollen disseminated by the wind and by insects) becomes difficult or impossible, and the tree will either fruit badly, or not at all.

9. Plant in close clumps, fenced to keep out cattle. Circular clumps are cheapest, as requiring least fencing. A circular plot with a radius of fifteen yards will hold 44 trees, allowing a square of four yards (16 square yards) to each tree. A circular plot with a radius of thirty yards will hold 176 trees, and this number will form a clump quite as large as it is necessary or useful to sow in the first instance. Care should be taken to space out the trees properly so that each may have room for development.

Order thereon, 10th July 1876, No. 928.

Communicated, with copies of the enclosures, to the Board of Revenue and Conservator of Forests.

2. The Board will arrange for the distribution of these papers to the officers indicated in paragraph 1 of the letter above recorded, and they will at the same time direct the special attention of those officers to paragraph 2 of the same letter.

(True Extract.)

(Signed) D. F. CARMICHAEL,

Secretary to Government.

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MISCELLANEOUS.

SORGHO.

Sorgho (*Sorghum Saccharatum*) or northern Chinese Sugar-cane is a forage plant adapted for both dry and wet cultivation. Its giant growth and its beautiful and graceful appearance and refreshing greenness in the driest season, and the expectation of finding in it a rival to sugar-beet, induced the French Consul at Shanghai to send some sorgho seed to his Government. In 1854 Mr. Browne, Agent of the United States Patent Office, took to America some French seed, which was distributed by the Government. The plant was cultivated by a few farmers, but it received little attention until an ex-Governor of South Carolina reported the results of his trials to a farmer's club, which brought sorgho into notice. Since 1855 its cultivation has steadily increased, and it has now taken its place among the great crops of the country. It is grown in France and Algeria for alcohol chiefly, and in America for seed, forage, sugar, syrup, alcohol, vinegar, and beer. In the ten North-Western States, where it flourishes, there were in 1864, 366,670 acres of sorgho, and sorgho sugar was selling at Chicago at 4½*d.* per lb. But for sugar sorgho has turned out a failure. Its great merit as a forage plant is its principal recommendation, and in this point an official report of the United States' Agricultural Department has declared that the value of sorgho for feeding stock cannot be surpassed by any other crop as a greater amount of nutritious fodder can be obtained by it in a shorter time within a given space and more cheaply. While grass yields a ton or a ton and a half of hay, sorgho will yield from two tons to nine tons of dry fodder. Sorgho (Lootsoh) flourishes wherever Indian corn flourishes. The seed is sown for transplanting on warm ground, finely broken in the middle of April. The young plants are watered with liquid manure as soon as they appear, and for three or four days watering is repeated night and morning, if the weather is dry. They are pricked out, when six inches high in rows three feet wide, and six inches from plant to plant, and are again watered with liquid manure when a foot high. Weeds are kept down by hoeing until the cane matures, about November.

The crop begins to come to market, however, early in September, or as soon as the stalks are sufficiently sweet for chewing. A Chinese laborer earning 10*d.* a day can cultivate about two acres during the six months that the crop needs his labor.

In America it is found that sorgho can be successfully grown on all lands where a fair crop of Indian corn can be grown. Deep loose warm soil, even of poor quality, produces the sweetest and most juicy stalks. Irrigation is recommended, but can seldom be attained in the United States. In deep black loam sorgho reaches a height of sixteen feet or eighteen feet, what will it not do on our future sewage farms? The juice of the giant growth is not so sweet, nor is it easily crystallized. The seed should be soaked twenty-four hours in tepid water, in which one ounce of saltpetre is dissolved to every six gallons. It is then dusted with gypsum and drilled two feet apart and twenty seeds per foot (for forage). In seven or eight days a horse sub-soil plough is put between the rows up one side. The land should be ploughed well and deeply manured liberally, say from six to seven tons of farmyard manure per acre, and if saltpetre is procurable and cheap, it should be added at the rate of 100 lbs. per acre. This manure should be ploughed in crosswise to the first ploughing, harrowed and levelled, the seed should then be sown in drills twenty-six inches apart, and 20 seeds per foot. In seven or eight days a bullock hoe or cultivator should be put between the rows up one side and down the other, or the rows hoed by hand. The process should be repeated as the crop advances, but in no case should the plant stems be earthed up, as they send out roots above ground, which must be left exposed. The first cutting should be made just before the canes show signs of flowering; the plants will send out side shoots two or three at a time for successive cuttings, affording a supply of excellent green fodder, extending over a period of six or eight weeks. If the crop is to be used for dry fodder, the canes, when cut, should be set in shocks, and the shocks built with precautions for ventilation. If the crop is required for seed only, the leader of the canes should be left to flower and mature its seed, while all the side shoots may be cut for fodder.

Under this system of dry cultivation and high farming at Hanasuru near Mysore, a plot of 1,296 square yards of very rich land which had long been under cultivation, and was heavily manured beforehand, produced 12,657¼ lbs. of fodder and 1,498½ lbs. of seed, equivalent to 21 tons 1 cwt. 1 qr. and 10 lbs. of fodder per acre, and 2 tons 9 cwts. 3 qrs. and 5 lbs. seed. This very large out-turn is attributed to the extreme richness of the land, a favorable season, and high farming. Again, in the Toomkoor District, in the rich black soil of Gubbi, where sorgho was tried, the canes attained the height of 18 feet, and a very heavy crop of fodder was cut. Unfortunately the weight per acre was not recorded. On the average light soil of Bangalore, with a moderate supply of manure, upwards of 10 tons of fodder were cut per acre. Even this last mentioned crop far surpasses the out-turn of any grass grown in the province, and is superior to the average out-turn of an acre of the country jowar or cholum.

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So much for the results of high farming; no doubt in favorable seasons a fairly remunerative crop might be raised even under the Native system of light ploughing, scanty manuring, and careless weeding. The seed could be sown with the Sudiki (see Buchanan's Mysore, page 261, plate XI) or country pulse drill; three of these pulse drills tied to the Native harrow and served by three men would do for the sowing process, followed in due course after a fortnight by the country bullock hoe.

There are a great many kinds of so-called sorgho (the two real sorts are the Imphee or red seed already known in parts of India and the black seed of North China), the last mentioned containing most saccharine matter. As the several kinds hybridise freely, they should be grown separately, never near each other; when the seed is formed, the crop must be watched and birds scared; parrots are particularly fond of the seed, and destroy immense quantities if left undisturbed.

The superior merits of the *sorghum saccharatum* over other grasses consist in (1) the heaviness of its crop, (2) the rapidity of its growth, (3) its abundance in saccharine matter, (4) its power of standing heat and drought, and its susceptibility of production nearly all the year round, especially in the dry and hot months, when every kind of grass is burnt up; and lastly its extreme remunerativeness as a crop under high farming.

From enquiries made by the Government of Bengal, the Agricultural and Horticultural Society of India stated that no reliable information had come before that Society in regard to trials made in India with the so-called "Northern Chinese sugarcane," "sorgo" [*Sorghum* (*Holcus*) *saccharatum.*]

The well-known "jowar" or janeera of Upper India is the produce of *Sorghum vulgare* (Pers.) It is known in the Madras Presidency under the name of "cholum." The produce of "jowar" in good soil is often upwards of a hundred-fold, and much used for food (Rox. 6). The straw known by the name of "kurbee" is reckoned very nourshing for cattle, and is a substitute for forage for horses when grass is not obtainable. The "deodhan" of Lower India (*andropogon saccharatum*, Rox 6) is also much cultivated during the rainy and cold seasons. This would appear to be closely allied to the *holcus saccharatus* of Linnæus. Roxburgh remarks that the only circumstance that renders him uncertain whether it is the same plant, is the total want of the arista in the hermaphrodite flowers: in other respects they agree.

As such closely allied plants as "jowar" and "deodhan" are indigenous to India, and give a fair yield under ordinary cultivation, it is not improbable that the "Chinese sugarcane" (if we do not already possess it) might prove an acceptable addition to our other forage crops; and with good management would probably repay cultivation, both in yield of grain and stalk. As a saccharine producer, however, it could not compete successfully with the ordinary sugarcane of the country.

Mr. Scott, the Curator of the Royal Botanical Gardens, writes:—

"With reference to the variety called the sorgo—lootah of the Chinese—I had seeds from China in 1868, and devoted a plot to them in the gardens here. The seeds were sown towards the close of the rains; they germinated freely, attained a height of from six to eight feet, and matured their seeds about the end of January. In a plot alongside of these grew the jowars and deodhan of Bengal, with their presumed normal form *Sorghum halepense* Pers.; (the *Andropogon cernuus* of Roxburgh); and, certainly, in so far as mere cropping was concerned, any of the latter were superior to the lootah of the Chinese, this being decidedly less robust than any of the former. No doubt this may be largely attributable to the changed conditions under which it was grown, and a more robust progeny may naturally be expected from country-grown seed. Admitting this, however, and remembering that we are dealing with mere varieties of one variable species, the question naturally occurs—will this lootah (if really a superior fodder grass as compared with its indigenous Begal kin) retain its highly nutritious characteristics, under the acclimative process; or is it not more likely that it will thereby lose its presumed superiority? Practical experiments can of course alone determine this; but in such a question as the introduction of new forage plants, it is well to draw attention to indigens, when such they are, so closely akin."

About two years later, that is, in April 1873, Dr. Henderson, then officiating as superintendent of the Royal Botanical Gardens, reported the result of further experiments made with this plant.

On a plot of ground in the garden measuring 1,680 square yards (or 80 square yards more than one-third of an acre), two pounds weight of seed were sown on 17th July 1872, and yielded the following amount of green fodder:—

			lbs.	
1st crop.	13th August	... ...	1,040	
	14th „	... ...	1,040	
	17th „	... ...	1,600	
	18th „	... ...	1,640	
	30th September	...	480	
	Total	...	5,800	1st crop

			lbs.
2nd crop.	19th October	...	2,880
	23rd „	...	800
	Total	...	3,680 2nd crop.

Or a total amount of fodder of about 4 tons 4 cwt. exclusive of some plants left for seed, or roughly 12 tons to the acre. Almost no manure was given, for the crop in December looked very poor. Another experiment with seed produced in the garden has been undertaken with what results is not known, Dr. Henderson wrote.

"I find in the Journal of the Agricultural and Horticultural Society for 1871, Vol. III, part 1, new series page 31, a memorandum regarding this plant by Mr. John Scott, Curator of this garden. I believe it has been repeatedly tried for very many years in various parts of India, and the reason why it has not yet established itself is probably because it requires a very large quantity of manure as well as plenty of water. Many years ago I made experiments with it in the Punjab in every variety of soil, and found that it could be successfully grown almost anywhere, and if well manured and liberally watered, it yielded a very large quantity of excellent fodder, considerably more I think than any other fodder plant with which I am acquainted, and could be cut five or six times during the summer. I also tried to extract sugar from the juice and made some fair samples which, as far as I recollect, had this peculiarity that neither flies nor ants would touch it.

On questioning the native gardeners here as to the quality of the fodder, I was told that it is so injurious to cattle that no one would take it as a gift, and that cattle would hardly eat it. It appears that the crop grown here last summer was offered to the villagers about, but they, seeing such fine fodder offered gratis were naturally suspicious of it, and would have nothing to do with it. So the next batch was sent to the Commissariat, but the Commissariat Sergeant learning that the villagers refused it, declined to let any experiments be made on the Government cattle. I need not say that there is no foundation whatever for this idea that the plant is injurious to cattle. I know as a fact that cattle are fond of it and thrive on it, and the bullocks in this garden are now eating it without any bad effects. I saw fields of the *sorghum saccharatum* in Eastern Turkistan near the city of Yarkand where it was growing to ten feet in height.

My opinion of the plant is that it is one of the very best that can be grown for fodder where plenty of manure and water can be given. The crop is no doubt rather an exhausting one, and it would just be the thing to grow where sewage irrigation can be obtained, and in saline, or reh soils, if it could once be got to germinate after flooding or draining the land sufficiently, I believe it would take up the excess of saline matter faster than almost any other crop."

In the Monghyr District, some seed received in May 1873 was sown at once, both in the Government garden and in the garden attached to the jail. Though offered free of charge, no applications were made for the seed, which seemed to be already known as the *gahuma jenara* otherwise *chothi jenara* or markatia, which is credited with the undesirable property of exhausting the soil, while yielding an inferior kind of coarse grain unsuitable for food except for the very poorest people. Nor is it held in high estimation as fodder—being supposed to be too nutritious.

The plants sown in the Government and Jail gardens ripened and attained a height of seventeen feet. Bundles of it were exhibited at the *cutcherries*, and half-starved cattle allowed to make meals of it. Although the gigantic growth of the plant caused some surprise among the people, hardly any applications were made for seed which all new was for distribution gratis. Colonel Murray, the manager of the Government garden, had been offered only Rupees 6 for the crop standing on a beegah of land; and although he offered bundles of the plant at two annas each, Mr. Dear was the only purchaser. One bundle, when weighed, was found to be 1 maund 15 seers, whereas a bundle of weeds and grass exposed for sale for two annas weighed 20 seers only. The land on which this crop is grown was worth Rupees 5 per beegah, and the cost of cultivation amounted to at least 5 Rupees more, so that *sorgho* could hardly be called a profitable crop. It appeared, however, that the seed was sown at the wrong time of the year to be a success. During the rains a large supply of grass and weeds is obtained from the land on which the *bhadoi* crop stands, and cowherds can obtain a fare supply of grass merely for the trouble of cutting it. In the cold and hot weather, however, a good crop of sorgho would command a better price than at other seasons, but even then the cattle pick up coarse food on the *churs* and uncultivated hills, which abound in the district. The fact is that setting aside land merely to grow fodder for cattle is an arrangement which does not at all coincide with the views of native cow-keepers; they laugh at the idea of growing crops merely for cattle to eat, and they ignore the fact that their cattle form a puny, half-starved race, more fitted for the knacker's yard than to yield a supply of milk and butter. There is no doubt that the sorgho plant cannot be compared to sugarcane, so far as yielding sugar is concerned; and it is never likely to be preferred to other kinds of grain as food for man.

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It is only as fodder for cattle that it can be recommended; and even as fodder, if allowed to ripen, the canes, although carrying weight, look very dry, woody, and indigestible.

When about half grown, however, this plant has much to recommend it as fodder. Any scheme which might tend to the improvement of Indian cattle should receive full encouragement. Properly cared-for cattle in this country would probably rival the best breeds in England, for so far as we know India is the original home of the cow, which is descended from the wild *gaur*, the largest of all horned cattle. As it is, although the cow is looked upon as a deity by the Hindoos, in no other country does it uniformly receive such bad treatment as in India.—*The Indian Agriculturist*, Vol. I, p. 222.

PROSPECTUS OF THE MADRAS AGRICULTURAL COLLEGE.

Objects.

This institution is designed to afford instruction in the science of agriculture and in the practical application of sound principles in conducting the ordinary agriculture of this country.

The Farm, &c.

The farm is conducted as an experimental farm; its area is about 280 acres, and it is well provided with suitable buildings.

The educational buildings needed will be erected on the farm on land situated in close proximity to the village of Sydapet, in which village students will readily obtain lodgings, board, &c., during their course of training.

In the farm workshops all kinds of agricultural implements and tools suited for use in India are manufactured and repaired.

An Agricultural Library is now in the course of formation, and it is in contemplation to provide a Reading-room for the use of students.

A Veterinary Hospital, a Chemical Laboratory, and an Agricultural Museum will also be established as funds are forthcoming.

Management, &c.

The institution will be attached to the Educational Department under the general control of the Director of Public Instruction, acting in communication with the Board of Revenue. The direct management of the institution will be entrusted to the Superintendent of Government Farms, who will conduct all correspondence regarding the institution, will issue all notices, orders, &c., regarding the delivery of lectures and other matters connected with the routine of the institution, and will maintain discipline amongst the students who will, in all things, be subject to the orders he may issue.

Instruction, &c.

The course of instruction will extend over three years; there will be two sessions in each year; a Summer Session and a Winter Session; the Summer Session will begin each year on the 1st of April, and will end on the 30th of June; the Winter Session will begin on the 1st of October, and will end on the 31st of March. Though, in the Winter Session, class-room and lecture-room instruction will not begin until the 1st of October, students will, nevertheless, be expected to attend at Sydapet on the 1st of September, in order that they may witness and take part in the important field operations conducted at that season in connexion with the sowing of the cold weather-crops.

The instruction given in the institution will embrace a thorough study of Agriculture and of such portions of Chemistry, Geology, Zoology, Botany, and the Veterinary Art as bear on the theory and practice of agriculture. In addition to these special subjects, the following will also receive attention:—Farm book-keeping, land-surveying, mensuration, and drawing. The instruction will be given by means of lectures, class-room discussions, and field classes.

During the portion of the day set apart for practical instruction in farming out of doors, every student will be expected to take part in whatever work is going forward on the farm; compliance with this regulation will be strictly enforced. Each student will be expected to make himself acquainted with all the operations daily performed on the farm, and will be required to keep a journal or diary of the same.

Instruction will be conveyed in the English language, but the Masters will afford as much assistance as possible in explaining the lectures and instruction generally to students whose limited acquaintance with English may make it difficult for them to follow such instruction without explanation.

Admission.

Europeans, Eurasians, and Natives of all classes are eligible for admission into the institution when vacancies exist, on complying with the following conditions:—

Candidates who desire to avail themselves of stipendiary studentships or scholarships must be between sixteen and twenty-four years of age, and must produce with their application for admission the following certificates:—

(*a.*) Certificate of age.
(*b.*) Do. of character.
(*c.*) Do. of physical fitness.*

* Should state that the candidate has been vaccinated.

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For the present no fee will be charged except in the case of students who enter only for instruction in special subjects; strict conformity with all the rules of the institution will be enforced.

Students must provide themselves with all necessary text-books, stationery, &c.

Students who have passed the Matriculation or General Test Examination will be eligible for admission without undergoing any further examination, provided they produce the certificates needed, and comply with the other conditions laid down. When there is a greater number of these candidates than there are vacancies to fill, a selection will be made of the most promising, at the discretion of the Superintendent.

When there are more vacancies to fill than there are candidates qualified, as stated in the preceding paragraph, the entrance examination will be as follows :—

English.—Ability to write correctly and legibly from dictation and express themselves with reasonable correctness and intelligence in a letter or in a report.

Arithmetic.—The first four simple and compound rules, vulgar and decimal fractions.

Vernacular.—Tamil or Telugu (in the case of Europeans and Eurasians only); ability to translate into English easy sentences from an elementary vernacular prose work commonly used in schools.

History.—The leading facts of the Histories of India and England.

Geography.—The outlines of Geography generally and the Geography of India in particular.

The date of the examination and of future entrance examinations will be duly notified in the *Fort Saint George Gazette.*

STIPENDIARY STUDENTSHIPS.

Of the students who have at the close of the first session been most successful twenty-four will be selected to fill stipendiary studentships, to be established by Government, to which will be attached a monthly salary of Rupees 12-8-0 in the latter half of the first year, Rupees 15 per mensem in the second year, and Rupees 17-8-0 per mensem in the third year under the following conditions :—

No stipend will be increased until the prescribed examinations have been satisfactorily passed. The stipend will be liable to be forfeited in part or in whole for continued disobedience to orders or neglect of duty, and no person who holds a stipendiary studentship will continue to hold it if found to be unfit to undergo further training from incapacity or want of interest. No stipend can be held for more than two and a half years, and cannot be retained unless the recipient pass for the higher grade within twelve months.

SCHOLARSHIPS.

Three scholarships, each of the value of Rupees 10 per mensem, and tenable for two years under certain conditions, will be given to the three students who, at the end of the first year of training, secure the largest number of marks, and who, in other respects, have given satisfaction. These scholarships are to be held under the same general conditions as are applicable to stipendiary studentships.

AGRICULTURAL CERTIFICATE.

At the conclusion of the course of training, each student who is found to possess the necessary knowledge, and whose conduct has been satisfactory, will be entitled to a certificate, certifying to his qualifications as an agriculturist.

SCHOOL-TEACHERS AND OTHERS.

Arrangements will be made under which young men, who are studying in Madras to qualify themselves as school-teachers, will be permitted to attend one or more courses of lectures and to undergo a partial training in practical agriculture at the institution, with a view to teaching this subject in middle-class and elementary schools under their charge.

GENERAL.

Land-owners and others may enter students at the institution under the same rules and regulations as Government Stipendiary Students, provided the stipends are paid regularly one month in advance to the Superintendent, Government Farms, by whom these stipends will be disbursed under the rules prescribed.

Persons of any age above sixteen who possess a fair knowledge of English may enter the institution to study any special subject or subjects taught therein. They will be required to pay a fee of Rupees 2 per mensem during the time their names are entered in the register of the institution.

CURRICULUM OF STUDY.

First Year.

Agriculture—Elementary.
Zoology.
Chemistry—Inorganic.
Veterinary—Animal Physiology and Anatomy.
Botany—Vegetable Physiology.
Drawing—Elementary.
Land-Surveying and Mensuration.

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Second Year.

Agriculture—Crops and Stock.
Geology—Elementary.
Chemistry—Organic.
Veterinary—Therapeutics and Materia Medica.
Botany—General.
Drawing—Plans.
Land-Surveying and Mensuration.

Third Year.

Agriculture.
Geology—Agricultural.
Chemistry—Agricultural.
Veterinary—Pathology.
Botany—Agricultural and Horticultural.
Drawing—Machines, &c.
Mechanics, Farm Book-keeping, &c.

TIME-TABLE.

First Session only.

Monday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	9 to 10 „	Lecture	Agriculture.
	10 to 11 „	Class-room Instruction	Language.*
	3 to 4 P.M.	Do. do.	Mensuration.
	4 to 5 „	Lecture	Zoology.
	5 to 6 „	Field Class	Agriculture.
Tuesday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	9 to 10 „	Lecture	Veterinary.
	10 to 11 „	Class-room Instruction	Language.*
	3 to 4 P.M.	Do. do.	Drawing.
	4 to 5 „	Lecture	Botany.
	5 to 6 „	Field Class	Do.
Wednesday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	9 to 10 „	Lecture	Chemistry.
	10 to 11 „	Class-room Instruction	Language.*
	3 to 4 P.M.	Do. do.	Mensuration.
	4 to 5, 5 to 6 „	Field Class	Land-Surveying.
Thursday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	9 to 10 „	Lecture	Agriculture.
	10 to 11 „	Class-room Instruction	Language.*
	3 to 4 P.M.	Do. do.	Drawing.
	4 to 5 „	Lecture	Veterinary.
	5 to 6 „	Field Class	Do.
Friday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	9 to 10 „	Lecture	Botany.
	10 to 11 „	Class-room Instruction	Language.*
	3 to 5 P.M.	Laboratory Class.	
	5 to 6 „	Lecture	Chemistry.
Saturday	6 to 7-30 A.M.	On the Farm	Practical Instruction in Agriculture.
	8 to 9 „	Weekly Examination	Each subject of lectures in rotation.

For "Candidates' Application Forms" apply to the Superintendent of Government Farms, Madras.

* This will be a subject of study only in the event of it being necessary to admit into the College young men who have not passed the Matriculation or General Test Examination.

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Text-Books to be used in the Agricultural College.

Subject.	Title and Author's Name.
Agriculture ...	Agricultural Class Book, by W. R. Robertson, M.R.A.C.
Chemistry ...	Lessons in Elementary Chemistry, by Professor Roscoe, B.A., F.R.S.
Do. ...	Laboratory Guide, by Professor Church, M.A.
Veterinary ...	Physiology of the Animals of the Farm, by Professor Hodges, M.D., F.R.S.
Botany ...	First Book of Indian Botany, by Professor Oliver, F.R.S., F.L.S.
Zoology ...	Rudiments of Zoology, by R. Chambers, LL.D.
Land Surveying and Mensuration.	Principles of Geometry and Mensuration, by Thomas Tate.
Drawing ...	First and Second Book of Drawing, by Chambers.
Book-keeping...	Manual of Book-keeping, by J. Constable, M.A.

Lecturers.

Agriculture ...	William R. Robertson, M.R.A.C., *Superintendent, Government Farms.*
Veterinary ...	George Western, M.R.C.V.S., *Veterinary Surgeon to the Body Guard of His Grace the Governor.*
Zoology ...	James Keess, M.D., &c., *Professor of Anatomy, Madras Medical College.*
Chemistry ...	W. Hamilton, *Assistant Professor of Chemistry, Madras Medical College.*
Botany ...	R. Wilkins, F.R.C.S., *Assistant Professor of Botany, Madras Medical College.*
Geology ...	———
Field Experiments and Practical Agriculture.	Charles Benson, M.R.A.C., *Assistant Superintendent, Government Farms.*

Masters.

Drawing and Book-keeping.	———
Land Surveying and Mensuration.	———

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Glasgow, *September* 7.

The President (Sir George Campbell) opened the proceedings by reading his address, of which the following is an abridgment; in the Economic Science Section:—

"I understand it to be the object of the Association that in the treatment of the subjects presented to us we should study in this, as in other Departments, to follow as far as may be a strictly scientific method of inquiry, not lapsing into the discussion of political details, but attempting to ascertain the principles on which economic results are founded and to define the main lines of economic truth. At first sight statistics expressed in figures might seem to constitute the most exact of sciences, but in practice it is far otherwise. In nothing is so great caution necessary. There is too great temptation to reduce to figures facts which are themselves not sufficiently ascertained. Too often an exactness is claimed for these figures; results which are altogether fallacious and misleading. It is especially necessary to distinguish between figures which are really ascertained and those which are merely drawn by deductions from rough and conjuctural facts. A false appearance of exactness should not be given to these latter. There can be little doubt that statistical science is one of the most important institutions and necessities of our time; especially in this country, in which we are somewhat deficient in that science. First, we require statistics for the direct ascertainment of facts for practical use—for instance, the statistics of production—agricultural and manufacturing statistics—are of the greatest practical importance to the farmer and the manufacturer. But there is a second and almost more important use of statistics—viz., the cultivation of economical science by the inductive method. It is by collecting, verifying, and classifying facts that we are able to approach economic truth. In proportion as we attain that knowledge we become acquainted with the main agent in economic science, and make advances towards a knowledge of that science. When we seek to understand economic history, the economic institutions, it is seldom that all the necessary materials are ready to hand in our own country and our own age; we must search for them far and wide. We may observe facts and may obtain statistics in countries which are in stages of human and economic history very different from our own. We of this country, who rule over so many lands in so many parts of the world, have special opportunities for this kind of economic study. In my own experience I have been particularly struck by the light thrown on our institutions by a comparison with those lately and now existing among the

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different peoples of India. Of the history and use of local institutions we may learn very much in India. That country was, locally speaking, one of the most self-governed countries in the world in native times. In all parts of this island, while the civic constitutions of the ancient burghs have been preserved, the self-governing institutions of the country at large have almost entirely disappeared, leaving only a few fossil remains to testify to their previous existence. On the continent of Europe the old communes retain a good deal of vitality, but it is in India under native rule that we see these institutions in full vigour and working order. That little Republic, the village community of India, has come to be looked on as an interesting old relic, rather than as the subject for modern imitation. In my opinion we may draw from it a very large store of economic knowledge which may be very useful to us. I believe that the more we introduce into India true economic science, the more it will be apparent that we have taken on ourselves too heavy a burden—that too great centralization is a mistake, and that in a country where political freedom on a large scale is impossible the only satisfactory resource is a large measure of the local government to which the people are accustomed. The tenure of land is another subject on which great light is thrown by Indian experience. After an intimate acquaintance with the tenures which we there find in existence and those which our system has created, we seem to have before us a picture of the rise and progress of property in land. Among the communities holding land we have manifest traces of the old system of partition and re-partition; we have before our eyes the gradual decrease of that old system and the gradual growth of the individual tenure of the lands under the plough, with common use of the pasture lands, the wood, and the water on a tenure strictly analogous to that of English commons, we have the struggles between the Lords and the Commoners, and questions between the Commoners and the landless members of the community just as we have had in this country; then we have the growth of English ideas of property in land; we have the over-lord, the Zemindar no longer holding in feudal tenure, and receiving customary dues and services, but turned by us into a rent receiver; we have the struggle of the rent receiver influenced by our ideas to turn the privileged cultivator into a tenant pure and simple to appropriate the commons and to establish absolute property; we have the emancipation of some cultivators and copyholders the subsidence of others put unto rackrented tenants at will, and then into labourers. All these stages in the tenure of land we have in the Indian countries where the Zemindar system has prevailed. In other parts of India where the Government has recognized the rights of and dealt with the ryots direct we have the rapid development of small property in land in all the incidents of that form of property in which, in many parts of Europe we are familiar. The subject of small cultivation seems to derive a new interest from what is now going on in regard to the emancipated Africans in the United States of America and elsewhere. I understand that the cultivation which has already made the produce of the American cotton districts almost or quite equal to that before the war is for the most part the cultivation of small independent negro cultivators, who raise cotton on a system much the same as that under which the ryots of India or *metayers* of Italy cultivate small farms. There seems to be among the dark races of India and Africa a dislike to regular hired labour and a preference for independent labour on their own account, which makes them prefer small farming to service, at all events leads to their doing better work on their own farms. There has been, I think, a disposition to undervalue the agricultural skill of the Indian ryot, and if it should prove that in advanced America, under free institutions, the cultivation of an article of great value and high quality is best carried on by small black farmers, we may well believe that in other countries, too, great results may be obtained by the same system. The settling down to honest labour of the American freedmen is an example full of promise, I hope, for the African race throughout the world. If in all the countries where the state of black freedmen is still uncertain they can be thus settled, a great end will be achieved, and in Africa itself we may hope that in countries now torn by war and slavery a guiding hand may lead the African race to peaceful, prosperous, and happy times. Very intimately connected, too, with this question is that great and most difficult subject of pauperism. Poor Indian ryots manage to get on without poor laws, because they are prudent self-workers; the poor Irish farmers for the most part do the same. In most European countries there are no poor laws, yet when the people of a country are reduced to the position of labourers poor laws become a necessity. It is found in practice that people living on wages do not make the same provision for themselves and their helpless relations that self-workers do. There has been a strong disposition to meet this tendency by a more severe administration of the poor laws by driving poor people into the workhouse. I confess that I doubt the efficacy of this system. At any rate, I think it may be carried too far, and I was glad to hear Mr. Walter, of *The Times*, make a manly stand against it in his place in the House of Commons. At the same time, I admit that there are two sides to the question. It is for us to treat the matter scientifically and to consider the principles on which poor relief is founded. The Scotch are a logical people, and they are inclined to take the view that payments to the poor rates are a

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kind of insurance. They pay rates when they are well to do, and they think they are well entitled to pensions from the rates when they are disabled. Is this view a correct one, or, if not, what is the real principle of poor-rates and poor relief ? I think that these are questions which must be answered by those who would take a severe view of the relief system. I am inclined to doubt whether English *doctrinaires* or Central Boards can much improve on our careful and prudent system of out-door relief administered by local bodies who thoroughly know their own people. He would be a bold man, indeed, who would prophesy the value of silver, and compared with gold a few years hence. I shall certainly not attempt to do so. There are countries, China especially, of which we know very little; and I apprehend that the course of the silver market will very greatly depend on the action of the States of the Latin Union and the United States of America. The disposition of the Government of India seems to be to adopt a waiting policy, and there are not sufficient *data* to enable any one to pronounce with confidence that this course is wrong. "When in doubt what to do, try how it will answer to do nothing," is a maxim of much value. The only plan to which personally I have a little inclined is to put more silver into the rupee, and that would not be safe till we are sure that the change in the relative value of the precious metals is permanent. On one point only in connection with this subject I should like to say something further. The belief has been expressed, and the Silver-Committee has accepted the suggestion, that India is likely to absorb an increased and increasing quantity of silver for currency purposes. This I greatly doubt. It is said in many parts of India that silver is yet little known for purposes of exchange, most transactions being conducted by the primitive method of barter. This, I think, quite a mistake. I have as wide an experience of India as most men, and I know no part of India where traffic is by barter for want or ignorance of coin, except the most remote Hill regions of the most savage and unexplored aboriginal tribes which are yet hardly known even geographically. The Hindoos are a very old people; they used coin freely when we had none, and they have not forgotten the use of it. I should say that the special feature of their transaction is the use of a great deal of coin in cases where we should use notes, checks, or bills, and my impression is the opposite of that which has been suggested. When I first went to India very large quantities of coin were hoarded. Every prosperous native Prince who managed his finances well according to native ideas hoarded very large sums in coin. On the occasion of successions, minorities, and otherwise, we ascertained the reality of these hoards, and the weight and power of a prince or noble was estimated by his store of treasure. So in grades below there was much disposition to put by stores of rupees, and the prosperous peasant, like the Frenchman, either buried rupees in his hut or made them into ornaments for his family—a little capital to be converted into cash when necessity arose. Till very recently paper money was wholly unknown, and, even yet it is used only to a very minute degree compared with its use in European countries. Now that the country is more opened up every day, that there is confidence in British peace, that new channels of enterprise, new wants and ideas are developed, I believe that the habit of hoarding coin diminishes, and that native Princes and nobles spend their money in many new ways. When they accumulate they lend it to the British Government to make railways in their territories or undertake enterprises of their own or put it in "Government paper;" smaller people travel by railway, enter into speculations, and utilize their money instead of hoarding it. In one direction, as people become richer, the ornaments on their wives and children may become more valuable; but in another direction there is less hoarding of capital in this form. In a country where the coin of legal tender is so bulky as silver, there is much greater occasion to use paper money freely than where the currency is gold. I see not why, as confidence in our notes increases, they may not come to be used 10 or 20 or 50 times as much as at present—why notes for large sums and silver for smaller sums should not constitute the currency for transactions for which copper suffices. If the tendency of things should be at all in the direction which I have indicated, it would follow that while we might understand the absorption of a vast amount of silver in the past century, we might also suppose that the tendency thus to absorb that metal would continue. As education fits a man for his duty in the scheme of economy, so dissipation of various kinds unfits him, and we can hardly exclude from economic science the effect of the abuse of stimulants—I was going to say use and abuse, but I think it may be doubtful whether there is any real use for stimulants at all. In dealing with the matter scientifically it seems very necessary to inquire how far the appetite for various stimulants is connected with questions of race and climate, and what is the comparative effect of pure stimulants and those which have a norcotic element. I have been led into the suggestion that these things are very much a matter of race by observation of the very singular way in which in Asia the populations are divided into those who use opium and those who use alcohol,

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according to race, even in countries where the facilities for obtaining the one or the other are precisely similar. In the east of India I found that the consumption of opium in the various districts was just in proportion as a Turanian or Chinese element prevailed in the population. From so fertile sources of crime as drink and other stimulants one not unnaturally passes to justice and the repression of crime as essential to economic safety and prosperity. No one who has experienced the vast relief obtained by the change from a crude and undigested state of the law to the use of codes can doubt the immense advantages of codification. It is very greatly to be regretted that so little progress in that direction has been made in this country. Not only would there be the great direct gain, but there would be this enormous advantage—that in a codified shape the laws of the three kingdoms might be assimilated. The very great juridical advantages which we possess in many respects in Scotland would be communicated to the sister kingdoms, and, on the other hand, we should obtain in Scotland some modern reforms which we need, we should get rid of that shocking anomaly and hindrance to business—the necessity of passing in the same Legislature separate laws for England and Scotland, only because there is a difference in the legal phraseology and some of the details. I have been much struck by the extreme ignorance which prevails in England regarding our Scotch criminal system. The world is ransacked, for example, in regard to such questions, for instance, as the examination of the accused, and yet there is not one well educated man in England in a thousand who knows that in his own island, at his own door, there is a system of criminal procedure most radically different from his own, and, as I venture to think, very worthy of English imitation. Who in England has the least idea of the wholesome Scotch system under which the first inquiry includes the examination of the prisoner before lawyers are permitted to see him, and the record for judicial use of the statements which he makes? After judicial inquiry comes punishment, and here I am inclined to believe that the civilized world is very much at fault. I think there is still immense room for scientific discussion on the subject of punishment. There are some great subjects, such as sanitation and punishments in respect of which I believe that the experts claim a certainty and a knowledge which has not yet been attained. On the contrary, I think there is still everything to be gained by inquiry and experiment, conducted without prejudice or preconceived conclusions. The mere shutting up a man in prison without severe treatment is by no means a sufficient deterrent to all natures, and when we seek to be severe we clash with modern notions of humanity. In one shape, indeed, there seems to be a disposition to revert to a form of torture—that is, by flogging; yet after a great experience I am myself much convinced that of all forms of corporal punishment flogging is the most uncertain, ineffective, and dangerous. In a light and simple form it is good for juvenile delinquents, whose offences are petty and whom we would not contaminate by a first imprisonment, and flogging is to some natures a material addition to other punishments; but as soon as we try to carry it beyond this we are placed in this dilemma—that a flogging which is safe is an insufficient punishment. A more severe flogging is a sort of lottery. Nineteen or ninety-nine men it may not harm; the twentieth or hundredth it will kill. I really believe it would be safer to cut off a finger or an ear than to attempt to deal with serious offences by flogging only. It is because I think we do not yet fully understand the science of punishment that I am myself opposed to a too uniform and centralized system of prison management. I thoroughly admit that there is much room for reform in regard to the number of our gaols and for improvement in the management of many of them, and measures to carry out these objects I would gladly see; but, doing so much, I would still both retain in this association other things, the services of the many experienced local Magistrates who in this country give so much time and attention to local business, and leave a considerable latitude for some variety of treatment and some facility of experiment in regard to the treatment of criminals.—*The Times.*

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